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THE AUTOMOBILE MAGAZINE

APRIL, 1901

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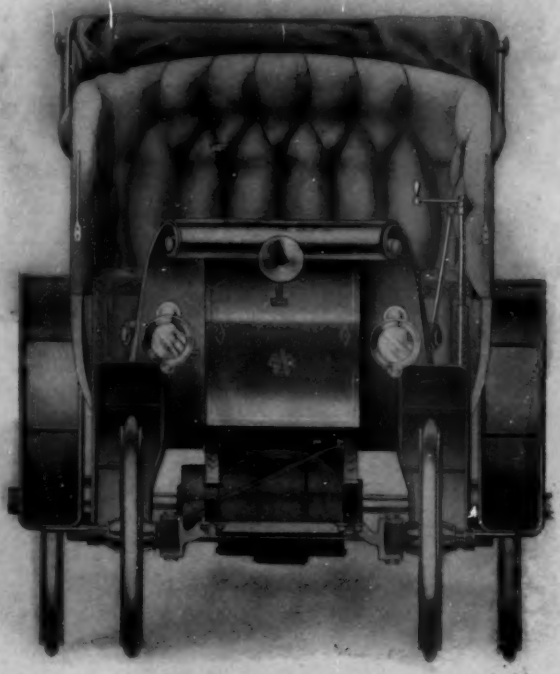
VOLUME III NUMBER 4

Clinton E. Woods

Automobiles



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THE AUTOMOBILE MAGAZINE

VOL. III APRIL, 1901 No. 4

The Lights and Shades of Motoring, or Reminiscences of the Thousand-Mile Trial

By MRS. M. E. KENNARD

PART I

TRUE indeed, it is, that the lights and shades of motoring are infinitely varied ; but this fact, instead of detracting from the fascination of the pastime, only serves to enhance it. The word monotony does not exist in the automobilist's vocabulary. One day he may realize unalloyed pleasure. His engine works splendidly, and the car is running in its very best form. His spirits rise like wildfire. But the morrow brings forth quite a different state of affairs. Punctured tires, stale gasoline, imperfect carburation, pump and numerous other troubles conspire to alter the conditions, and drive even the proud owner of a high-powered Panhard well nigh to despair. But in spite of mishaps, the distinguishing attribute of every true automobilist is his enthusiasm. The uncertainties of the road serve but to increase his keenness. As a body, motor car experts are extremely intelligent. Their minds are quick and receptive beyond the average. They are centuries ahead of the general public, who, ignorant, stand aloof and scoff. In England at any rate, the masses have much to learn respecting the self-propelled vehicle. Nevertheless, curiosity has undoubtedly been aroused, as was evinced by the interest shown in the recent trial of 1,000 miles.

A 3 horse-power De Dion voiturette was kindly placed at the writer's disposal by that famous erst-while cyclist, Mr. S. F. Edge. It may be said in passing, that the manipulation of this little carriage

is extremely simple and eminently suited to ladies. From the remarks overheard at the various exhibitions, it was evident the fair sex longed to overleap the barriers of automobilism much as they had already charged and demolished those of cycling. When that time comes —and it is not far distant—an enormous demand will arise for light, easily-driven cars of the De Dion type. But our dear friends, the ladies must be prepared to learn something of their subject, and not imagine—as so many do—that cars will run without oil, water, grease or attention. Let them remember a motor requires to be both fed and cared for if good results are to obtained. If women have the wish to learn, they can gradually acquire information.

Monday, April 23, 1900, saw such a mighty procession of cars, quadricycles, and tricycles congregated at Hyde Park Corner as was a revelation to this slow-moving country. The tour itself was entirely a new departure, and even Mr. Johnson—the admirable secretary of the Automobille Club—and others, who had originated it, had no idea what measure of success their project was likely to meet with. Despite the early hour, an immense crowd witnessed the start. Many cyclists accompanied us, and our little De Dion had the honor of pacing two celebrated wheelmen—Messrs. Bidlake and Goodwin. Once clear of the town, we took them along at a steady eighteen to nineteen miles an hour. They followed in our wake, until Mr. Goodwin's racing tire punctured hopelessly. A run of over thirty miles in the sharp morning air rendered the liberal hospitality of Mr. Alfred Harmsworth at Calcot Park peculiarly welcome.

Much refreshed, we resumed the run to Bristol, our car running grandly, taking nearly every hill on the top speed, and causing several six horse-powered Benz and Daimlers to look to their laurels. At every town and village through which we passed, throngs of men, women and children lined the roadway. Flags waved gaily from windows, white handkerchiefs fluttered in the breeze, clear young voices hailed us with cries of "Bravo, Hooray." It was a surprise to us all, and a very pleasant one to find ourselves greeted with such acclamation. Bristol was reached in excellent time by the majority of cars, and so ended a most eventful and enjoyable day, which was unmarred by any serious accident. Most of the vehicles that left London arrived sooner or later at their destination, only a small proportion broke down at this early stage of the journey.

On Tuesday, the 24th, a halt was cried, and the cars were placed on exhibition. A great many people came to see them, including a

large number of fashionably dressed ladies. As an instance of the public taste, the following incident may be quoted. My next door neighbor was also a De Dion voiturette, but the owner had introduced sundry small alterations, turned the third seat to face the road, added a splash board, side wings, and a pair of smart plated lamps. His car was spick and span with shining paint and polished nickel. He did not propose going the whole distance, and retired from the scene on the following day. We, on the other hand, although not officially entered, were in full traveling array—a little worn may be by use and weather, but in

Fig. 1. A Jolly Procession

sound running order. Our front seat was abolished, so as to make room for a long basket carrying cleaning utensils and other indispensable necessaries. The smart car was surrounded by a crowd of admirers, who pronounced it the prettiest in the show. But ours, which possessed the same motor and had proved itself on the previous day infinitely the better traveler of the two, was passed by unnoticed. It made one ponder, whether it were not worth the seller's while to expend a few extra pounds on outward adornment, when finery so takes the public fancy. The carriage alone, with its paint and varnish,

its cushions and upholstery appeals to the novice; not the motive power which propels it. Of that, he or she thinks nothing whatever, and respect for it is only gained by—often bitter experience.

Wednesday, the 25th, saw us once more on the road, Birmingham being the goal. Soon the chapter of accidents began to lengthen. Punctures were numerous and delayed many of the cars, while others complained of bad petrol. Meanwhile the fast cars forged ahead, Mr. Roll's 12 horse-power Panhard leading, with Mr. Kennard's 8 horse-power Napier (Fig. 2) in hot pursuit, closely followed in its turn by the 12 horse-power Daimler of Mr. Holder. And the smaller fry struggled gamely on, their drivers nearly blinded by the long trails of dust left by the Leviathans. It was a merry scurry, which set the blood aglow, much as does a good run out hunting. At Cheltenham a halt was cried, and the cars were exhibited for three hours in the Winter Gardens. Again a fashionable throng inspected them, and many openly wished they were taking part in the expedition. We began to feel flattered by the favor with which we were received, and no longer felt doubts as to our reception. Tewksbury and Worcester afforded the procession a positive ovation, and the streets of the latter town were so densely packed with human beings, that the cars had considerable difficulty in threading their way through the serried masses, who pressed closer, ever closer upon them, and if the truth must be told recklessly courted disaster. The exhortations of the police were powerless to keep them within bounds, and it was fortunate for many that the drivers were almost in every instance steady, experienced people, with their vehicles well under control. Woe to the luckless autocarist forced to stop for a temporary repair. His car was immediately surrounded by a surging crowd, pressed upon from all sides, tires prodded by dirty fingers, mudguards affectionately pawed, lamps wiped with clammy hands which left a stain behind, whilst the children even put out their tongues and licked the dust from the wheels. Thanks to the popular eagerness to see the interior arrangements of a motor car, the owner could scarcely get at a spanner. No doubt such curiosity was not only natural but gratifying in a certain sense, nevertheless, it proved decidedly trying, and frequently added materially to the length of a delay on the road.

So far, we had reveled in the sunshine of motoring, but now, the shades of evening began to gather round our good little De Dion. As we neared Birmingham, she lost her matutinal vigor, and in its

stead exhibited a reprehensible and alarming sluggishness. She took to stopping on the hills after the fashion of a jibbing horse, and displayed sundry vagaries, which filled us with misgiving. We got into Birmingham determined to have an overhaul on the following morning. People are only too prone to blame their motor at the first symptom of feebleness, when nine times out of ten, the poor motor is only giving notice that its wants are not properly complied with. Such proved to be the case in our instance. On testing the dry batteries with an amperemeter, we found it only showed two and a half amperes. A new battery very soon put matters to rights, while our fears of a premature break-down subsided. The exhibition held at Birmingham on Thursday, the 26th, did not apparently meet with so much favor from the gentry as at some of the other towns. It was, however, well attended by the manufacturing class, who took critical stock of the various vehicles and noted their points of excellence. We were glad to make a start for Manchester at 7 a. m. on Friday, the 27th. Temporarily forsaking the De Dion, the writer transferred herself to a Critchley-Daimler belonging to Mr. Grahame-White. She had already driven it twice and knew it to be a good car when in order. We were not in luck, however. Soon after starting, the belts slipped badly and required shortening. This operation concluded, we looked forward to making up for lost time by some fast traveling. The motor gave out close on 7 horse-power and the car was geared to twenty-five miles an hour. But alas! we were troubled with refractory burners, which refused with singular obstinacy to keep alight for more than five minutes at a time. Mr. White unfortunately broke his pricker, and at last was forced to substitute new burners altogether, one of

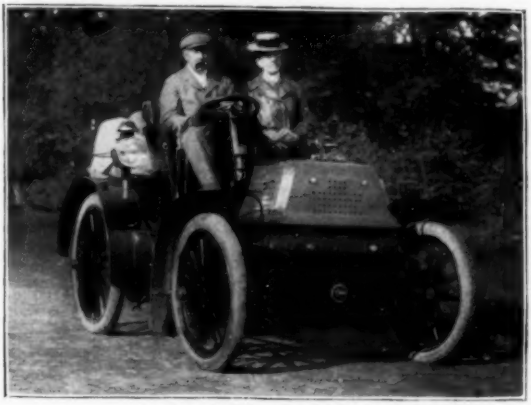


Fig. 2. "Sir Charles"

which behaved just as badly as its predecessor. Consequently, we arrived late both at Litchfield and Matlock. The beauty of the scenery compensated in no small degree for our misadventures. For miles the road wound by the side of a celebrated trout stream, while the rounded hills were clad with verdure. It was a country to dally in with rod and fly. Before us lay a stiff climb, which the Critchley accomplished in good style, save for some slipping of the slow-speed belt. We emerged on to an open moorland, breezy, blowy and health-giving. Thence, by a long descent, with many curves to Buxton. And now for the first time that day, the car was bowling along in really splendid style, and we were congratulating ourselves on our rapid progress, when lo ! off flew the rotary friction pump, which kept the water circulating supplied to the engine. It rolled ahead of us like a tiny hoop, and at the sight our hearts sank, for we knew only too well, that with the departure of that miniature circlet, we had entered the shadow-land of motordom. We gazed despondently at the pump, picked it up with mute reproach, then, set to work to cut a piece of the rubber out, so as to lessen its circumference. This done, we joined the severed ends together with copper wire. Once more we started, only for that wretched wire to eat its way through the soft surface of the rubber after we had gone but a couple of miles. All the afternoon we were kept busily at work on the pump, trying string, rope, every device the fertile imagination of my companion could conceive. The sun disappeared, the moorland we had so admired a short while ago began to loose its bright tints. One by one, the colors faded, leaving it cold, gray and dismal. And as if to mock at our misery, the wind arose and buffeted us with cold blasts, mocking at the ravenous hunger which assailed us. For we had not lunched, being anxious to make up for lost time. We struggled slowly on as fast as an adverse circumstances would permit of. Suddenly, when three miles from the town of Macclesfield, the car stopped dead. Inspection showed that we had not a drop of gasoline left in the tank. We exchanged glances of blank dismay. Should we have to bivouac for the night sans food, sans luggage, sans everything? The question obtruded itself with disagreeable prominence. Courage ! the fates for once were favorable. Macclesfield was only three short miles ahead, and as good luck would have it, the road descended sharply all the way. After a few preliminary shoves, the car ran without fuel on her own momentum to the very outskirts of the town. Here we were able to replenish our exhausted stock of gasoline, and push on to Man-

chester. All day, we had subsisted on biscuits and buns. The pangs of hunger became gnawling. We ceased talking ; conversation only increased them. Mr. White drove steadily on, while the writer hung over the side of the car, and periodically reported on the behavior of the pump. It flew off not once but many times, only to be perseveringly replaced. At length Manchester was reached, and just as we drove up before the door of the Queen's Hotel, as if in parting defiance, our friend, the pump gave way altogether. Thank goodness ! we saw the last of that rubber circlet, which had played us such untimely tricks and marred the enjoyment of the day's drive. We both felt we owed it a grudge. Its behavior was the more aggravating, because from the first to the last, the engine had worked magnificently. But the true motorist is accustomed to ups and downs, and bears reverses with admirable equanimity. It was a day of interesting experiences, if not wholly of pleasure.

We spent the 28th at Manchester, an exhibition of the cars being held at the Botanical Gardens. It was largely attended. The order of arrival generally proved the same. The Rolls and Napier cars heralded their neighbors ; pride of place being occasionally wrested from them by a 12 horse-power Daimler. Then followed Mr. Wilson on an Ariel tricycle, and Messrs. Cheel and Newton riding a similar machine with Whippet trailer attached. This proved throughout a very fast combination, and distinguished itself by the excellence and steadiness of its running. Close behind it came Mr. Stocks and passenger, on the former's celebrated Ariel quadricycle, which performed so well up Dashwood and Asten hills in the hundred-mile trial ; while at respectful distances followed the lower powered cars—the Peugeots, Benz, De Dion, International, etc., etc.

Sunday, the 29th, should have proved a day of rest. Instead an enthusiastic company of motorists assembled in the yard of the Boar's Head, and in spite of pouring rain lavished manifold attentions upon several disabled cars, which had taken refuge there. Among them was an Orient Express with a damaged piston, which forced it to retire from the contest.

Monday, the 30th, found the whole company eager for a start. The roads were in a horribly greasy condition after the rain of the previous day, and for miles we proceeded at a cautious pace along cobbles of the roughest description, intersected by tram lines. Preston was alive with people, as were most of the neighboring villages through which we passed. From Lancaster onward, the road im-

proved very materially, and indeed left little to be desired. By 4:30 most of the cars were assembled in Kendal, preparatory to the hill-climbing test of ascending Shap Fell. Mr. Stocks kindly offered to drive the writer in his quadricycle—an offer of which she gladly availed herself. It proved a magnificent machine, magnificently ridden, and the first part of the ascent was taken at an astounding rate of speed. Later on, the surface deteriorated and finally became so loose that Mr. Stocks was forced to pedal his hardest. But for the wretched state of the road, he would have succeeded in climbing the whole of Shap Fell with myself as passenger, but the wheels of our conveyance sank deeper, ever deeper in the sandy soil, and although Mr. Stocks

Fig. 3. "Giving Her a Turn"

performed prodigies of valor, he was ultimately forced to divest himself of my extra weight for the last half mile. The quadricycle then finished the remainder of the journey with consummate ease. Undoubtedly it was the surface, not the hill, which stopped us. Many others found the same to their cost. Standing on the summit, it was a most interesting sight to see car after car gallantly scaling the steep ascent. Mr. Rolls came flying by, as if hills were powerless to stop the speedy Panhard. The Napier followed, though in more leisurely fashion, and all the three De Dions—the two entered ones and our unentered vehicle—gained the top with comparative alacrity. Of the small cars,

nothing took the ascent in better form than the Wolseley voiturette, which carried its full complement of two passengers. In the majority of instances one passenger, if not both, had to walk at the steepest gradient. After all, it is no great hardship to have recourse to Shank's mare for a few yards, and in process of time every vehicle that started for Shap Fell succeeded by hook or by crook in gaining the summit. This fact speaks volumes in favor of the modern motor car. That it is capable of much improvement, none will deny ; but that it has already attained a surprising pitch of excellence, all impartial persons must admit. A large section of intending buyers say "Oh ! I will not buy a car just yet. I shall wait for improvements."

Let me assure them, that whilst they are cautiously waiting, they are losing precious years of enjoyment impossible to replace. Let them take what they can get for the moment. It is good enough for infinite fun, infinite pleasure, aye and infinite utility. The absolutely perfect motor car, with the cheapness, the simplicity, the total absence of noise and vibration, the capacity to burn common paraffin, to travel without complicated accessories in the shape of clutches, cogwheels, gear, pumps, etc., may come in the far off future ; but it neither will nor can come just yet. The public may as well make up their minds to that fact once for all. Great progress has already been made ; the pioneers of the movement are everywhere on the alert, eager to seize on new ideas and try new experiments, but the final type of horseless vehicle has still to make its appearance. Meanwhile, do not stand aloof because you cannot get absolute perfection. Rather ask yourself, do you get it in your horse, your train, or any other form of transit. If honest, the answer will be—no.

We were off on our travels again on Tuesday, May 1, but only having a short journey of sixty-six miles before us, we did not leave Kendal until 9:30, a concession for which the majority felt truly grateful, seeing that a 7 o'clock start entailed rising at 5, if not earlier, in order to oil and water the cars, previous to a hurried breakfast. Phœbus shone kindly upon us on the present occasion, and as we passed through the beautiful Windermere district, immortalized by Ruskin, we were fortunate enough to experience delightful weather. The sun gleamed brightly on the smooth shining lakes ; the tender green of Spring adorned the country hedgerows, which were just bursting into life ; the birds sang joyously and all the hills stood bare and clear against the genial blue sky. Our only regret was that we passed all too quickly through this lovely region, but the road was broad and

tempting for speed purposes. In addition to this, one of the chief characteristics of the tour was dislike to being left behind. Every driver did his utmost to keep as near as possible to the leading vehicles. In some respects this promenade of ours resembled a mighty race. We were all vitally interested in the doings of our individual car, and would not have dropped out for untold gold. And so, we flashed past Windermere, enveloped in a whirlpool of dust, merely making a mental note to revisit the lake country at the earliest opportunity. To do it justice required both time and repose. It was desecration to whisk by as we were doing, but what would you? We were a party of motorists with a daily programme to be got through, not a band of artists or photographers, who could wander leisurely from valley to crag, from mountain to lake. So we heaved a sigh of regret, but enjoyed the glorious drive and delicious morning in an unorthodox, autocarist way. "Strange creatures!" the outside public murmur with superior disapproval. Poor benighted Public! We pity you from the bottom of our hearts. You know not what you miss. In spite of dust and dirt, we were as happy as princes, when we reached Keswick and compared our experiences. We stayed here for luncheon, but I am bound to state that the good people in this little country town were not apparently impressed with the appearance of either Jehus or cars. Both were indiscriminately smothered in dust. "A dirty sight," they dubbed us. But what signified that, when every face beamed with delight? The road to Keswick was mostly on the downward grade and had many sharp curves. That no accident occurred said much in favor of the drivers. Carlisle was reached considerably sooner than anticipated, and all were loud in praises of the day, which, thanks to fine weather and beautiful scenery, proved one of unqualified enjoyment. Our De Dion comported itself admirably and so far had proved a most trustworthy conveyance.

Wednesday, May 2. Wind, rain and heavy roads greeted the expedition when it left Carlisle for the classic town of Edinburgh. It was a hard day, especially for the small fry. They, however, comported themselves with the utmost gallantry. The ascent of Birk Hill proved even more trying than Shap Fell. The road was exceedingly tortuous, prohibiting high speed, and it was strewn with stones. In addition, it was so narrow that only with great difficulty could the faster cars pass the slower ones. For miles and miles we plodded our way over a detestable surface, momentarily dreading puncture, and refusing to derive consolation from the mountain scenery, which was

shrouded in thick gray mist. Up, up, up, it seems as if the summit would never be gained,. At last, reward came in the shape of a grand run down to St. Mary's Loch, where luncheon was provided at the solitary hotel. The landlady must have blessed the motor cars, for she reaped a veritable harvest, charging precisely what she pleased. It was a regular case of "pay, pay, pay." But we were too hungry to cavil at extortion. The keen Scotch air had made us all ravenous. The remainder of the journey was quickly performed, although our De Dion no longer traveled in best form. Once or twice we stopped to adjust the trembler, without effecting any material improvement. At Edinburgh, a monster crowd greeted our arrival and escorted us to our quarters at the Waverly Market. Here our cars were housed for the night, preparatory to the morrow's grand exhibition. And so ended the outward portion of the journey, whose success was now assured. All taking part in it agreed that the Thousand-mile Automobile trial of Great Britain was an experience which they would not have missed for any consideration. It was esteemed a privilege to have accompanied this unique procession, so greatly had the members taking part in it enjoyed the trip.

Three hard days' running rendered a halt for the Edinburgh exhibition anything but unwelcome. The enthusiasm displayed by our brethren of the Northern capital was peculiarly gratifying. The huge hall was thronged. During the afternoon of Thursday, May 3, a Highland band performed and charmed Southerners with their stirring playing of the national bagpipes. Several of the cars went round the arena, giving trial rides to those interested, and what between the "teuf teuf" of their engines and the penetrating notes of the bagpipes, it must be confessed the din was awful. Then Mr. Coles gave an exhibition of his skill as driver of a Benz car and went through some of the maneuvers recently performed at the Alhambra. The public were delighted, and the show proved the best and most successful of any held during the tour. Edinburgh possesses a well established autocar service, so the canny Scot has given up looking at a motor car as a fearful and wonderful thing capable of all deviltry. With the perspicacity of his race he acknowledges its usefulness, and recognizes that it cannot be ousted even by enterprising and courageous County Councillors, filled with zeal for their own and the common welfare. All honor to the astute Scotsman.

(*To be continued in May number*)

Opening of New Rooms of the Automobile Club of America

EVER since the members of the Automobile Club of America got the first inkling of new headquarters there has been a great deal of speculation as to just where the location would be. It was no easy task which the committee in charge of the arrangements was assigned to, but who shall dare to say that when the selection was made, it was not the best.

Saturday, February 16, was a red letter day in the history of the Automobile Club of America, the national parent organization. The Plaza Bank Building was, on that occasion, alive with automobilists. In the afternoon there was tendered a reception to the daily and technical press of the city, this being followed in the evening by a reception to members and guests. Shortly after 8 o'clock p. m. the members began to arrive, and by 9 p. m. the rooms were comfortably filled with ardent lovers of this new sport, which has become so popular ; much of this popularity, in this country at least, being due to the admirable work done by the Automobile Club of America during the short time it has been in existence. When one stops to consider, it is remarkable how great an influence this club has exerted upon the automobile industry in all its phases.

President A. R. Shattuck called the meeting to order, and in a few happy remarks recapitulated what the club had done, was doing and hoped still to accomplish. As what the club has already done is well known to our readers, we would only say that Mr. Shattuck in speaking of what the club hopes to accomplish in the future referred to the carrying out of the proposed endurance test between New York and Buffalo. This will most likely take place during the last week in August or the first week in September of the present year.

Now, a few words as to the rooms themselves, their arrangement and furnishing. Taking the front and largest room first : the windows in this room look out both on Fifth Avenue and Fifty-eighth Street; seated at either window the outlook is simply charming. One may watch the steady stream of pedestrians and carriages, almost in an unbroken line. Anyone could sit there and be amused and interested for hours at a time. The beautiful plaza is spread out before one as a great picture full of life.

The chairs, couches, etc., in the room are upholstered in red, a very appropriate color for an automobile club room. The walls are hung with numerous pictures.

Leading off the large main room is the library and committee room. This room, having wall paper of green color and upholstered in the same color, forms a very pretty contrast to the one just described. At one end is a very pretty case, containing books on automobilism. Placed in the center of this room is a large table with lights so arranged as to be excellent for reading purposes. The room is exquisitely furnished, and the walls here are also hung with choice pictures. The windows are draped with heavy red curtains while portieres of the same color adorn the doorways. In fact, every room in the place is beautifully furnished, and the members have every reason to be proud of their new home.

At the back of the main and committee rooms is the grill room. This, too, is furnished appropriately. The floor is tiled, and a look of sociability is on every article in the room. Each member is entitled upon the payment of $5 per year to the use of one of the lockers which are in this room. On the opening night the members and guests present were entertained to refreshments in this room.

One very satisfactory feature about the rooms is that the necessary alterations, furnishing, etc., has all been accomplished, paid for, and a fairly good sum is left in the treasury. There has been no attempt at extravagance, and the money put into the hands of the committee in charge has been judiciously expended. The outlook for a still more successful year's work is very bright. There cannot be any doubt but that the influence of the Automobile Club of America will grow more and more as time goes by.

Autogo, but Won't

It was an automobile,
Began to balk and rant,
And when 'twas told to move on, said,
"I auto, but I shan't." —*Harper's Bazar.*

My First Road Run Without a Mechanic

By HERMAN B. BARUCH, M. D.

FOR Heaven's sakes, Carl, what's the matter; can't you get that nut on right? "Aber die machine"—that's all right; now, Carl, don't talk—work. After two days' hard work my automobile is in good shape again, from tires to sparking plug. A turn of the handle and we are off, with a thump and a bang and a clatter.

These trucks are always in the way; steady, there, now, do you want to punch a hole in me? 'Phew, that was a close shave, but there is safety in rapid motion when controlled by a cool head and steady hand.

At last we are through the crowds and safely wedged in between two enormous coal wagons on a Long Island ferry boat. "Need a horse?" "Want a tow?" "Say, lend's a bag of oats," and other taunts only served to enliven the passage across the river.

I had turned off the motor on boarding the ferry and to my dismay could not get her to start again. This had happened to me on several occasions, and the only explanation I can think of is that my machine was purchased in May, and like a May "colt" will "lie down" when crossing a stream!

Well, we pushed and pulled her off into a coal yard and after some frantic telephoning to New York secured the services of a so-called "mechanic" from one of the "stables." He came over, took her all apart, put *most* of the pieces in again, and said he could not find anything wrong. On turning the crank again the motor started, as much to his surprise as mine. It was then 6 p. m. and growing dark and we were due in Jamaica, 12 miles away, for supper.

How we did buzz along that beautiful stretch of road, past a seemingly continuous train of truck wagons bringing produce to New York. None of these horses paid the slightest attention to us, nor did any take fright until, when nearing Jamaica, we blew out the sparking plug packing and sounded like a train of cars with every joint leaking. However, we were hungry, and as she still moved did not investigate until after we had had supper in Jamaica.

I began to dilate on the joys of automobiling to my companion and told him how I intended to get up at 5 next morning to repair

the damage done. He began at once to have the most complicated set of symptoms I have ever listened to, and you will hardly believe that lazy rascal pretended to be so sick all through the trip that he could not help me a bit, but gloated over me from the comfortable seat every time I got down to sweat in the broiling sun when the motor would *not* "mote."

Next morning I was up early, got into a bicycle shop and found a piece of asbestos and made a new packing for my spark plug. I also found what my "mechanic" had failed to discover the day before, that the platinum points of my sparking plug (wipe spark) were corroded and worn. I took out the points and replaced them with sections of a wire nail and got a beautiful spark. Next I roused my companion from a sound sleep, and shortly we were on the Merrick road again and clipping it off at a twenty mile gait. There was not a horse in sight and we could not resist the temptation. We did a measured mile in 2 minutes and 10 seconds, but I will never again try to steer a wagon traveling as fast as that unless fitted with a wheel.

This is, indeed, an automobilists' paradise. The road keeps the bay and ocean in sight from time to time; we pass through beautifully kept little villages and over as perfect roads as are to be found in America. Don't talk to me about horses, this is locomotion idealized, a poet's dream. By Jove, that salesman did tell the truth and with care the machine can be made to go.

But hark! What ominous sound breaks in on this revery? There it is again. She is missing explosions, she jumps, she starts, she ceases to move, and with a few preliminary chokes and puffs my motor stops with one dull and sickening thud. Here we are, stranded in the woods three miles from Islip and not a wagon in sight. John, who has up to this time been all animation, is suddenly taken ill again, and I must sweat it out alone.

Now, I am going to do this thing systematically. Each battery is tested in turn; 1.5 volts register the limit of each cell. The sparking plug shows a blinding flash for one instant and then is dead again. Out she comes, new points are inserted. I had made several pair. New wires put on, new gasket, still no spark and two hours gone. "A horse! A horse! My kingdom," etc.

Thank the Lord, a farmer is coming along behind us in a ramshackle runabout pulled by a sorry old white horse and agrees to take us to town for $5 (the robber!). Well, we got out the tow rope, without which I have learned never to leave the stable, and hooked on

behind his wagon, which hardly looked strong enough to stand the strain of our 1,750 pound machine. However, that old horse jogged along and did more for us than our 11 horse-power motor could.

Finally we arrived in town, and were received with jeers and cries by the entire village. I wanted to tow her to the stable and send for a "mechanic" or give the old thing away. Just as we got to the barn door and were about to shove the old box into the stable John suddenly woke up and yelled, "Oh, say, Doc, give her just one more turn for good luck." Now, mind you, I had turned that cussed crank about three thousand times and could not get her to start and he had the impudence to make the suggestion again, as I thought to mortify me before that gang of "countrymen." However, I thought it could do no harm, and without the least idea of having the motor start, gave the crank a turn and off she started as merrily as though nothing had ever gone wrong.

John grasped the levers and amused himself by "demonstrating" the machine to a batch of about twenty lovely Long Island girls, while I was so dirty and grimy with my work that none of them would give me a glance, thinking I was John's hired man. That boy raced up and down Main Street (there is always a Main Street) and she ran better than ever before. He, however, succeeded in picking up a nail in the left hind tire and I was in despair until the local bicycle dealer made a beautiful repair with red rubber bands.

After a little delay we headed for Moriches and completed a thirty-mile run without missing another explosion. I have since, after spending several hundred dollars for repairs (this is no exaggeration), discovered that my trouble was in the sparking coil. I found this out experimentally one day when I had a bad spark and put in the coil the electrician had installed in our house for lighting the gas by spark. After this my ignition troubles ended.

I have used the feminine gender in referring to the automobile for in her moods, like woman, "she is as variable as the shade, by the trembling aspen made."

International Amenities

THE following courteous act of the Automobile Club of France is evidence of the pleasant relations existing between the automobilists of that country and Great Britain. The illustrations accompanying this article show respectively the obverse and reverse of the medal presented by the Automobile Club of France to English automobilists in connection with the 1,000-mile trial of 1900.

When the French club sent the medals it left the decision entirely to the British club. The judges decided that the first prize be awarded to Mr. Kennard, who entered his 8 horse-power Napier ; second prize to Wolseley voiturette ; third to New Orleans voiturette. The photographs from which our half-tones were made were taken by Mr. Kennard himself, who, as stated above, was successful in carrying off first prize.

A Correction

IN our issue for December, 1900, we published a contribution entitled, "The Horse's Ode to the Automobile." We have since learned that it was originally published in the *New York Sun*, of November 9, and must offer an apology for its appearance in this magazine without giving our esteemed contemporary credit.

Bay Charley's Dream

As I stood in my stable one evening and dozed,
I lived over the scenes of the day ;
Felt the jerk of the bit and the sting of the lash,
Heard the motorman's gong and the iron wheels clash,
And a fallen horse wistfully neigh.

But what worried me most was a wonderful sight,
Supernatural, strange, I had seen ;
'Twas a carriage, built trimly as carriages are,
All polished and shining, each wheel and each bar,
And of stylish and elegant mien.

It passed me by quickly, and trundled away,
While I shied, as a matter of course,
Why the thing was uncanny, bewitched and unreal ;
For it traveled along on each rubber-rimmed wheel
Without ever the sign of a horse.

Hence I stood in my stable and puzzled and guessed,
In wonder and doubt most extreme ;
Now where were the shafts? I would much like to know,
And who drove the carriage? And what made it go?
Till my wondering changed to a dream.

I thought a procession, most weird, came in view
From out where the long street recedes ;
'Twas made up of each kind of a vehicle known,
From sulky and T-cart to wagons for stone,
And methought they were all without steeds.

But as they drew near, my heart flew to my teeth,
The truth I most firmly endorse ;
That every conveyance that slowly passed by,
Brougham, wagon or hansom, or cart low or high,
Was propelled by the ghost of a horse !

•

And so now when I see automobiles pass by,
As I stand by the old hitching post,
I know that, in spite of all you may say,
Each one of the lot, from the coach to the dray,
Is drawn by a poor tired ghost.

KATHERINE M. YATES.

A Few Figures on Cost of Operating a Steam Automobile

By GEORGE E. GREENLEAF

THERE seems to be considerable diffidence on the part of automobile owners toward publishing the cost of running their machines. This may be caused by the fact that many owners do not care what the cost is, and hence do not keep any record of it, and in some cases by disinclination to acknowledge how much they had been misled by the manufacturers, whether intentionally or not. The statements of almost all makers are misleading, from the fact that only the actual cost of the motive element is given ; taking no account of such items as attendance, repairs, depreciation, etc.

A notable exception to the above comes sharply before the writer's memory. The person in charge of the exhibit of a large firm building electric carriages informed him, in reply to questions leading to the cost of operation and maintenance : "Oh, well ! These carriages are not made for poor people." The questioner subsided for fear of being handed over to the police as a suspicious character. He was certainly suspicious of some of the statements made to him in the course of that conversation.

It goes without saying, that the automobile should find its largest field of usefulness as a pleasure vehicle among people of moderate means, to whom the question of cost is of some importance. One of the "poor people" has kept a fairly accurate account of this cost, and the details may interest some of the readers of this magazine and lead to the publication of other statements of the cost of running and maintaining an automobile. After considerable deliberation and examination of various types of carriages, a steam carriage of well known make was purchased and we started out, like the traditional young bear, with all our troubles ahead of us ; anticipating many that were not realized and experiencing some which were not expected.

The carriage is a Stanhope runabout, weighing about 950 pounds with all tanks filled, the motive power being steam generated in a vertical fire tube boiler, heated by vaporized gasoline. The steam from this boiler drives a simple, two-cylinder, double-acting, link-

motion engine ; the power from the engine being transmitted to the rear axle by means of a chain. This carriage has been driven about 3,000 miles the past season, and a record of the items of cost of running and repairs was kept for about 2,500 miles. The record of the distance traveled is not exact as the cyclometer went "on strike" and did not register for an unknown distance, but certainly not far enough to make a very great difference in the total.

The greater part of our riding has been over the fine Telford paved roads of Union, Essex, Somerset and Middlesex counties of New Jersey, but on long rides we have had to take the roads as we found them, and consequently have been over some very bad ones. The cost of 74° gasoline in barrel lots, delivered at the house, was 11 cents per gallon, and there were used 227 gallons. The water supply cost nothing, except incidental tips to hostlers when on the road.

The pneumatic tires with which the carriage was equipped, although the best that were in the market, gave a large amount of trouble on account of punctures, which averaged one every 300 miles, until a change was made to a different style of tires, when all trouble from this cause ceased. As there was no shop in our city which could repair pneumatic tires of this size the tires had to be returned to the maker by express. The chain wore out in about 1,500 miles, but the chain put on to replace it has run about the same number of miles and shows very slight wear and stretch. A pump lever was worn out through carelessness in packing the pump plunger.

The boiler was badly burned, because the bottom connection to the water gage glass was allowed to become plugged with sediment, although the makers of the carriage should have provided better facilities for keeping this pipe clean. As we did not care to ride after freezing weather came, the carriage has been given a thorough examination and overhauling. The water and gasoline tanks were emptied and thoroughly cleaned, considerable dirt being found in both, although all water and gasoline were strained through fine wire gauze when filling the tanks. The boiler and burner were taken out and carefully cleaned. The boiler will be subjected to heavy pressure by cold water before being used again.

The engine was carefully inspected, all bearings being examined and the steam chest cover and cylinder heads removed for examination of pistons and valves.

It was considered best to put on new cones for crank-pins and main bearings and a new sprocket on the crank shaft. Although the

old ones would have run for 2,000 miles more, we did not care to be stopped for repairs in the middle of the season. Various small repairs have been made by the owner, who has some knowledge of machinery.

He has also made a practice of looking after the carriage personally; keeping the bearings in adjustment, glands packed, all joints and valves tight and the carriage in good running order generally. This would be done even if a man were hired to take care of the carriage, as the careful automobilist will always wish to know the exact condition of his carriage.

The following detailed statement gives the cost of running the carriage the past season :

Gasoline, 227 gallons @ 11c.,	$24.97
Punctures, 5 @ $2.00,	10.00
Pump lever,	.30
Boiler repairs,	39.45
*Engine repairs,	3.27
Gage glass washers,	.15
Valve rod and piston rod packings,	1.20
Chain,	3.50
Rear axle cone,	.50
Balls for engine,	.75
Cylinder oil, 3¼ gallons @ 85c.,	2.76
Engine oil, 2 gallons @ 65c.,	1.30
Cotton waste,	.40
Boiler inspection,	4.00
Total,	$92.55

As the distance traveled has been approximately twenty-five hundred miles it is thus evident that the cost per mile due to the above items is about 3 7-10 cents. Eliminating the cost of boiler repairs would leave the total of the above table $53.10, and the cost per mile would therefore be about 2 2-10 cents.

It will be observed that no mention is made in the above statement of replacement of worn out tires, depreciation, taxes nor interest on first cost, all of which are proper items to include and will increase the cost proportionately. These items are as follows:

Two tires,	$40.00
Taxes, 6 months,	4.40
Interest, 6 months @ 5%,	18.75
Depreciation @ 20% yearly,	75.00
Total,	$138.15

* These repairs need not have been made for at least two thousand miles more.

It is thus seen that the total amount to be charged against the carriage for the past six months is $230.70, and as about twenty-five hundred miles have been covered in that time the cost has been 9 2-10 cents per mile. Deducting the cost of boiler repairs, which would not have been necessary under more careful management, leaves the total cost about 7 6-10 cents per mile.

The wages of a man to care for the carriage are not included as the owner preferred to do this himself, although it involved a little unpleasant and dirty work to which some persons would object.

While the cost given may seem high it should be remembered, that to do the work this carriage has done would require at least two horses, and we have frequently made trips day after day which no horse could have made in the same time, nor with the same comfort to ourselves.

A fifty mile ride is only a pleasant afternoon jaunt, and several times we have left home between ten and eleven o'clock in the morning, stopping on the way from one to three hours for lunch, reaching home before six at night, having covered in that time from sixty to eighty miles at a leisurely gait.

In conclusion we would state that this account was begun as a record of the mileage made per gallon of fuel and water, solely for comparison with other carriages and with no intention of keeping a record of the expense of maintaining an automobile. If this article should lead to the publication of the experience of others, its purpose will have been fulfilled.

A New Steam Carriage

IT gives us pleasure to present to our readers some account of the main points of novelty about a steam carriage upon which Mr. John C. Blevney, of 132 Orange Street, Newark, has been working for some time past. It was the privilege of a representative of this publication to recently take a ride in the vehicle, upon which occasion the photos from which the accompanying illustrations were made, were taken.

Fig. 1. Rear View of Blevney's Steam Carriage

In designing this particular carriage, the builder has sought to improve particularly a number of the little things about a motor vehicle which are the cause of so much annoyance but are essential to a successful road carriage.

The exterior appearance of the carriage resembles in many respects other steam vehicles. When it comes, however, to the arrangement of mechanism and connections, the builder has struck out on new lines.

As will be seen by Fig. 1, the drive is perpendicular, which is

different practice from that followed by builders of steam carriages. This arrangement, it is claimed, puts all the vibration in a direction in which the vehicle is constructed to best take it up, namely, in the springs. The engines, of which there are two, one on either side of the boiler, are fastened together by means of struts, shown parallel to the main driving shaft of engine. These engines are made in one casting and with the exception of the cylinder heads and steam chest covers are without screws, nor is adjustment of any kind provided or needed. The engines and boilers rest solely upon the

Fig. 2. Mr. J. C. Blevney in New Vehicle

springs of the carriage. All ball and roller bearings have been discarded. Instead of these a metallic film is used. This permits the taking out of a piece of film which shows wear and the insertion of a new piece which may be cut from a tape-like supply. This film is $\frac{5}{1000}$-inch of very thin tempered steel. A piece taken from a bearing after having run four hundred miles was subjected to micrometer measurement and the amount of wear was not appreciable. This form of bearing has given great satisfaction and is, to say the least, the embodiment of simplicity.

All main bearings are lubricated from a reservoir formed within the engine shaft. A feature which is worthy of attention is the feed pump. This delivers the exact amount of water required to replace that taken by the steam passing from boilers. It is possible to lengthen or shorten the stroke of the pump as may be desired. This can be done from the seat, and while the carriage is running, by simply raising or lowering a lever placed at the left of operator. Like other pumps also, it may readily be converted into a hand pump.

The boiler and engines are mounted at the back of the carriage. This arrangement not only gives greater accessibility to working parts, but also obviates the necessity of the driver sitting over boilers, a not very pleasant position, especially in warm weather. All machinery is within the body of carriage, being dust and dirt proof, but yet easy of access should occasion arise.

Another little point worthy of special attention is the position occupied by the water gauge glass. This is placed not on the side of the body where it is exposed to the cold, but down near the foot-board, in the center of carriage, where it is warmer and less liable to cause trouble by freezing. No mirror is used. Instead of this Mr. Blevney has inclined his water glass so that the driver may look through the same. This is a little thing but it answers the purpose without the medium of a mirror.

The boiler is of the lightest construction consistent with strength and safety, and is of the fire tube type. It is practically without rivets. Enough water can be carried to take the machine about fifty miles. This is made possible by the fact that about two-thirds is used over again in the heating of feed water, and for further supply. The fuel and air tanks and their connections are all placed within the water tank, thus saving space which would otherwise be taken up by them.

Fuel is fed to the furnace by air pressure. This also is under control of the operator while in the seat. The flame is started without independent appliances from the rear of carriage ; so doing away with the necessity of kneeling down in the road to attend to this particular function. When riding in the carriage the vibration is very slight indeed, while the noise from exhaust is much quieter than in some other steam vehicles. The amount of exhaust is also less, owing to the fact that it is mostly condensed.

The brake acts on both the equalizing mechanism and on the axle. It acts equally well, both forward and backward. The ma-

chinery is light and with tanks full, ready for a fifty mile spin, weighs less than fifty pounds per horse power. The machine is the result of an experience covering a period of five years. It is a practical road carriage admitting of the use of either solid or pneumatic tires. It has the least possible number of parts. The seat is 36 inches wide, giving ample room for two passengers.

Mr. Blevney has evidently taken good care to cover the devices used, judging by the voluminous patent correspondence in evidence.

The designer has also given some attention to the application of his arrangement to business wagons, it being such as to permit its duplication, according to the capacity of the wagon to be used.

Book Reviews

WE have received from the Nature Study Press, Manchester, N. H., a copy of "Plain Facts About the Automobile," by Albert S. Clough. The author describes briefly steam, gasoline and electric machines, and enumerates what he considers their good and bad points. In his chapter on "The Selection of an Automobile" the author says, among other things: "There are two parts of every motor carriage which should be subjected to the very closest scrutiny by the intending purchaser, as upon their strength and efficiency will very largely depend his future safety. They are the steering gear and the arrangements for braking. No special harm will be done if an engine occasionally refuses to run, but the most disastrous results are likely to arise from any disarrangement of the steering apparatus or any failure of the brakes to promptly bring the carriage to rest." There is also a chapter on the care and housing of automobiles. Price 25 cents.

WE have received copy of "Oil Engines" by A. H. Goldingham, M. E. The author devotes the entire book to matters relating to the oil engine. His introductory chapter is devoted to accounts of the various igniters and vaporizers used on oil engines of different makes. Chapter 2 is given up to the design of oil engines, and contains information which should be of value to those having to do with such work. He takes up the various parts, cylinders, rods, shafts and fly-wheels, giving proper dimensions. Other chapters take up the questions of testing, cooling, and descriptions of various engines. The book is published by Spon & Chamberlain, 12 Cortlandt Street, New York.

Pandora*

IS the war-horse really destined to disappear from active service? And, as a substitute, shall we have squadrons of cyclists? And, if some future Meissonier should paint a famous cavalry charge after the manner of "1813," shall we see the great leader depicted motionless on his tricycle and being saluted by regiments of wheelmen, pedaling by with drawn sabres?

Doubtless, this might be a pleasing sight; but, re-reading lately some reminiscences of the month of August, 1870, at which time we were before Metz, engaged in daily skirmishes, there came to me tender souvenirs of my old war-horse Pandora, who went through the whole campaign with me; and, despite the ingenious article of Séverine, affirming that in time one comes to a realizing sense of a soul in the "machine" he guides, a sort of active principle acting independently of the machinery, and in antagonism to, or unision with, the driver, as the case may be,—I doubt that I shall ever love my automobile or my wheel, however soul-inspired they may prove, as I did Pandora. And alas for the poet who must seek inspiration for a sonnet from the clang of the "squawker" in place of the neighing of his fiery charger!

In July, 1870, being suddenly ordered from St. Cyr to Lille to rejoin the Fourth Dragoons, the regiment to which I belonged, having been promoted to the rank of sub-lieutenant, I had no choice of mount except from the remnant of sorry-looking nags that my comrades had discarded as undesirable. So, he really was not a beauty, poor Pandora! With his enormous head, thick neck and dingy yellow hide that rendered him irretrievably commonplace; but his chest was full, his back short and, most important of all, his legs were absolutely sound and flawless. Besides, he was prodigiously tall and, for an officer just brevetted, as I was, it seemed to me an advantage to be thus raised head and shoulders above all the rest of the men in my division. Perhaps this superiority of size was a doubtful advantage under fire, but one doesn't think of everything at once.

At last I was *en route* for Chalons, and from thence to Metz, with my giant horse, and it did not take me long to discover that we were congenial. In those days we trotted after the French fashion, the

*Adapted from the French for the AUTOMOBILE MAGAZINE, by A. Lenalie.

"English trot" being—no one knows why—absolutely forbidden to the troops. Now, Pandora trotted gently, being an old roadster, accustomed to marching in column, keeping his distance, stopping at the proper moment of his own accord, in the numberless halts that occur unforeseen, in such manner as to escape "telescoping." Being also very sure-footed he gave me the freedom of my hands to light my cigarette or take a swallow from a flask without halting. In fact, I rode on my saddle, between my traps and my knapsack, absolutely as though in a rocking chair, and I bore the pleasantries of my more dashing comrades with equanimity, as they passed me, shouting: "Look at the thoroughbred! Such a bee-yoo-ti-ful yaller!"

During our short halts I dismounted, unfastening the check, and, passing my arms through the reins, stretched myself out to sleep by the roadside, remembering the precepts of our instructor Brock: "In the field a good soldier should always sleep and eat at every opportunity." Now, my good Pandora thoroughly respected my naps at these times, never moving sufficiently to rouse me, but watching me with his great, round eyes till they closed from the effects of heat and weariness.

Under fire, especially, I had reason to appreciate Pandora's good qualities. Certainly, his big frame exposed me unnecessarily, but his imperturbable serenity balanced that. Nothing disturbed him. On August 14, at Borny, we were drawn up in battle behind the poplars that bordered the length of the route and the bursting shells having ignited these trees, the flames caused great fright and disturbance among the other horses; but mine simply evinced his uneasiness by a slight upward jerk of the head each time a shell burst in our vicinity, and so contagious his calm manner, in fact, that it imparted to me a similar appearance of self-possession, so that the Colonel, observing my assured mein as he passed, tapped me amicably on the cheek, crying: "Bravo! young man. Here's a fine baptism of fire for your new epaulettes."

On the 16th, towards 4 in the afternoon, the Fourth Dragoons, being drawn up in echelon by squadrons before the church of Mars-la-Tour, were ordered to charge to the relief of the lancers of the guard, who were in rather dangerous shape. I tightened my stirrups, patted my horse reassuringly, and then—— I was never exactly conscious of what happened afterwards; a blinding dust, an uproar of shrieks and hurrahs from a flying cloud of pointed helmets and blue tunics billowing about us; sabre blows, thrust and parried at random, in utter for-

getfulness of all the laws that had been so thoroughly inculcated by theory—and at a certain moment I saw myself surrounded by three of the enemy, with flashing sabres, then Pandora leaped wildly ahead without apparent cause and I found myself, all bruised and bleeding, yet safe, in the midst of my men. But when the trumpets sounded a halt, I discovered, at length, my poor beast was minus his right ear. A sabre blow had severed it completely, leaving but a bleeding tatter in its place, and I now understood the cause of his fabulous leap, that had probably saved my life.

But one ear, more or less, hinders no one from traveling, so, having arrived at camp, I carefully bathed the wound with salt and water till it was healed, and, after that, the jokes at Pandora's appearance were redoubled.

Needless to say, it gave him a very grotesque expression, his lopped head lacking symmetry and appearing longer than ever, but his back still remained in perfect condition without a scratch or any of those saddle-galls that cause so much inconvenience in the cavalry.

So we had struggled along together swiftly, engaged in active service wherever there were any sabre-blows to be exchanged, from Saint-Privat to Coincy and from thence to Ladonchamps. Then came the period of enforced waiting under the rain, in the mud, encamped before Metz near the gates of Mazelle. Provisions were growing terribly scare and poor Pandora, who was exposed to all the inclemencies of the season, grew visibly thinner each day. I had a comrade, d'Imécourt, who, with cheerful bluster, in the midst of all this confusion and general gloominess preserved his elegant habits of former happy days. At precisely three he donned his white gloves, always saying :

"Shall we go and take our 'little confection' at Metz now?"

This delicate refreshment was, in fact, somewhat of an illusion in a place where there was no longer even any bread, but, none the less, we vaulted to saddle, brushed and groomed as though for a lunch at Frascati's, d'Imécourt going to nibble some abnormally dry crackers at a wretched grocery, unknown to me, while I led Pandora to the hostelry of the Silver Lion, where, from my slender resources, I purchased the meager portion of oats that constituted his only supper.

Thus I sustained him as long as possible ; but in despite of this he wasted away very perceptibly, and it would have been an utter impossibility for him to have carried me to the front.

I visited him often, where he was tethered, patting him gently, and each succeeding visit I was saddened to see his coat growing harsher and more staring, his eyes more disquieted and the hollows deeper.

One fine morning the veterinary who rendered decision each day as to the animals no longer capable for service and, consequently, destined for slaughter, called to me mockingly :

"To-night we dine sumptuously ; I have ordered your Pandora to be butchered, as he could not stand on his feet any longer."

Perhaps it was absurd, but I recoiled as though struck and the tears rose to my eyes. This seemed like an overwhelming disaster, and when at dinner-hour my jeering comrades called me to the wooden shanty that served as dining-room for us, saying, "Come on ! There's a fine roast to-night—Pandora *à la* Lucullus—and we have served the ear for you, sauce piquante," I crept off to my tent alone, away from their jests, and stretched myself on my little cot, preferring to go dinnerless to bed. Poor, faithful old Pandora !

But when motors shall have entirely superseded horses there'll be less of sentiment in all daily routine, and so, less grief from undergoing just such scenes as this that my diary has recalled.

Notes from Abroad

The membership of the Automobile Club of Great Britain has now reached a total of 756.

In the line of rapid locomotion, the motocyclist, Baras, announces an instrument of his own invention that will cover 120 kilometers (about 75 miles) an hour. This is to be produced this spring.

Count Talleyrand-Perigord, the well-known automobilist, has just been chosen President of the Central European Automobile Club, Berlin. Count Talleyrand is well known as the founder of the Permanent Automobile Exhibition at Berlin, the first of its kind in Germany.

General André has courageously created an innovation in army routine, by placing two companies of cyclists in garrison at Sedan and Reims, calling Captain Gérard the father of the *pliante*, to command them. At length his great conception of the military cyclist becomes a reality.

One of the wreaths sent to Windsor on the occasion of the Queen's funeral was from the Automobile Club of Great Britain and Ireland. It took the form of a wheel with outstretched wings attached to the axle, and bore the following inscription: "A token of the profound grief of the members of the Automobile Club of Great Britain and Ireland."

The name of the Moto-Club of France has recently been changed to L'Union Automobile de France, in order that it may not be confounded with another club of similar title, but less devoted to sports. This club has already nearly 800 members, and is comfortably installed in its new quarters, 4 rue Meyerbeer, Paris. Many pleasant social features attach to it, such as a dinner at Sylvani's each Wednesday, where music and exchange of views on the sports of the day are enjoyed with a spirit of friendly comradeship.

Some of our English contemporaries have recently published articles in which they condemned track racing, as carried on in America especially. They take exception, and rightly so, to the oval shaped track. To the contestant, a track of such form is anything but satisfactory. When the end of the long side is reached he has of necessity to slow down to make the curve. This brings an unusual strain upon the machine, especially on the wheels. Such high speeds as have been recently made on some race tracks in this country ought not to be tolerated. The ideal place for a race is a common road, for after all what a machine will do on a nicely laid board track and on an ordinary road are very different. The short, oval track may be suitable for obstacle races, but it certainly does not seem to be the best place for races calling for high speeds.

One of the leading French medical papers, *Le Progrès Médical*, lately discussed the comparative cost of motor vehicles and horse-drawn vehicles in their application to the medical profession. After going into the matter thoroughly the publication referred to advises doctors to adopt automobiles in preference to horse-drawn conveyances. The figures given as showing the first cost and maintenance of both systems are approximately as follows :

FIRST COST.

HORSE AND CARRIAGE.		AUTOCAR.	
Horse,	$240	Car,	$1,700
Carriage,	300	Plant and utensils,	20
Harness,	100		
Stable, utensils, etc.,	60		
Total,	$700	Total,	$1,720

YEARLY COST.

Stable and coach-house,	$240	Stable,	$120
Coachman,	480	Mechanic and driver,	440
Forage, etc.,	433	Petrol, at 3 francs per day,	240
Sinking Fund, to redeem first cost in five years,	140	Tires and car, maintenance of,	120
		Sinking Fund, 10% first cost,	172
Net cost per year,	$1,293	Net cost per year,	$1,092

The following pointer, from Mr. Reginald Granville and sent to the *Motor Car World*, is suggestive of the many ways in which one

automobilist can be of help to his fellows. Mr. Granville wrote for the benefit of any motorists that a certain piece of road between Avignon and Marseilles in southern France was very dangerous, saying that while the surface looked well, it was composed of mud on top of chalk. He goes on to state that on account of such condition he and a fellow club member came near meeting with a very serious accident. They were seated in a twelve horse-power car which skidded so badly on this road as to cause it to collide with a tree, rendering one of the occupants insensible for some time. It was a small act on Mr. Granville's part to send this item to our contemporary, but it is just this kind of information the other man wants. To be posted on all such matters as these insures pleasanter experiences while touring.

The recent automobile show held in Paris was a decided success from every point of view, and a large variety of styles were exhlbited. Our esteemed contemporary *The Engineer*, of London, has just pnblished several articles based upon the exhibition referred to, and in its issue for February 22 the publication referred to goes into, in some detail, the construction of various French motor cars. In dealing with the subject, it remarks: "In order that the progress in motor vehicle construction may be better understood, it may be as well to consider the requirements that must be fulfilled by the mechanical carriage if it is to replace animal traction on the common roads. * * * A motor carriage ought to be practically silent and odorless so far as the exhaust is concerned. But an unskilled driver can make the best carbureter work badly, and many an owner renders his silencer worse than useless by boring it with holes like a colander, so as to avoid resistance to the passage of the burnt gases from the combustion chamber. The noise and vibration of cars propelled by internal combustion motors have been diminished, but not suppressed—and, indeed, it is materially impossible that it can be. * * * As the future of the motor car depends upon the tolerance of the public, this question of noise and vibration must be considered from their standpoint, and not from the point of view of the rider, who does not experience it in the slightest degree when the carriage is running. A few hundred cars will make no difference to the public; but if the petrol vehicle is to supersede animal traction in large towns, the noise and vibration caused by a running motor in a standard car must be reduced until it is scarcely perceptible This is the direction in which manufacturers of motors are now working."

Pegasus Up to Date

Ascend, My Love, and take your place
With queenly air and matchless grace,
And up to legal-limit pace
We'll speed our course afar
Along the highway, straight and clear ;
Of peril entertain no fear,
While by your stately side I steer
My brand-new motor-car.

No monarch e'er was half so proud
As I, when through the gaping crowd
I thread my way with hootings loud,—
An automobile star !
At lessened pace the hill we scale,
Then madly dash adown the dale ;
A cloud of dust denotes the trail
Where whizzed my motor-car !

The engine throbs beneath our feet,
And just as fast my heart doth beat ;
My joy is perfect and complete.—
. . . . . .
But why this sudden jar?
. . . . . .
I beg you, dear one, not to frown ;
By rail we must return to town ;
Alas ! My muse has broken down,—
So has my motor-car.

A. J. WILSON, in *Motor News.*

A word which is in common use over in Europe, and often appears in the automobile press is "petrol." As there may be some readers who do not know what is meant when this word is used, we would say that this liquid is simply one of the products obtained by the distillation of petroleum. The principal varieties of petrol are :

	Specific Gravity.
Gasoline, ...	.650
Moto-car spirit, ...	.680
Benjolene, ...	.700
Benzine, ...	.730

Foreign Machines at the Liverpool Trials

IN the recent trials of motor vehicles held at Liverpool, England, all the gold medals and all the awards were carried off by foreign-built machines. In awarding the gold medals to the De Dion-Bouton Company, which captured both gold medals, Prof. Hele-Shaw said :

"I regret to have to point out that these are both of foreign manufacture and design. The De Dion voiturette industry in France has now obtained enormous proportions, the firm in Puteaux, near Paris, having recently quadrupled their plant, although they now employ fully more than two thousand workmen, while the 'Locomobile,' which ran the De Dion pretty close in many points and excelled in others, is of American design and manufacture, that industry already having attained dimensions comparable with the De Dion. The other cars, like the Dechamps and Decauville, are obviously of French origin and manufacture, the Benz being of German design and make. A judge's report is not the proper place to moralize upon these points, but I may be permitted to express the hope that we shall make up some of the ground so sadly lost in light traffic, and ultimately attain to some position of prominence corresponding to that which we at present hold in heavy traffic."

These words coming from so able and experienced an automobilist as Prof. Hele-Shaw certainly mean something. It is true the De Dions which won first place in the races were built outside of America, yet American automobilists are so familiar with these vehicles as to look upon them as purely American. The "Locomobile" is distinctly an American product, and the reference of the Professor's to it is pleasing.

Dr. Stedman, who recently performed a surgical operation in light furnished by a bulb attached to the storage battery on his carriage, and to whom reference was made in our March number, has had made a regular outfit for use in this direction. It consists of 60 feet of electric cord and half a dozen lamps. The doctor never goes out but what he carries this apparatus with him.

Automobiles in Amsterdam

THE automobile is almost universally used. In a report just received from the U. S. Consul at Amsterdam, he states that the prospects for American motor vehicles are good. He advises, however, that they should be made narrower, as 4 feet 8 inches would be too broad for the roads over there.

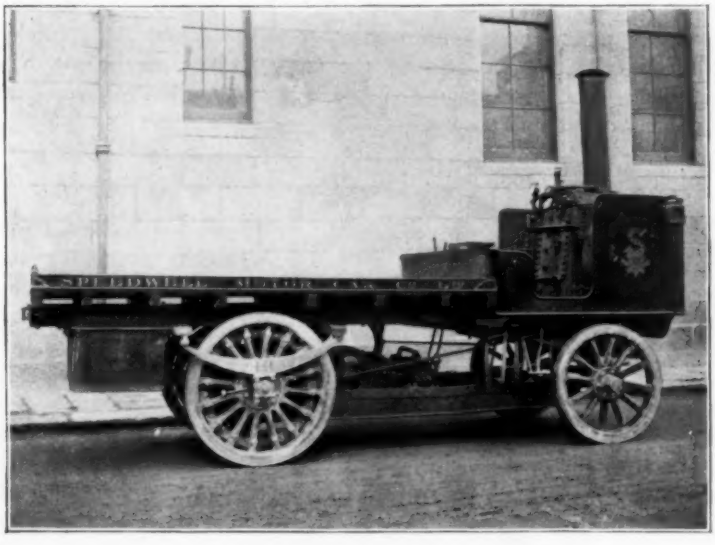
He also sends a list of the rules which govern automobile operation in the city of Amsterdam. These are as follows :

(1) Drivers (Chauffeurs) of motor cars have to comply with the police regulations respecting riding in streets and other places with carriages having one or more wheels and other means of transporting merchandise, and with the rules on bicycling concerning riding and passing streets and places. (2) The velocity may not be greater than that of a horse going at a moderate gait. (3) The motor cycles must be provided with a continuous-sounding bell or a strongly blown horn. (4) The motor shall only be used as motive power for the cycle itself. (5) Every cycle must be provided with two lamps throwing a clear light to front and sides from half an hour before sunset until half an hour before sunrise; one of such lamps will suffice at the front of the carriage for a three-wheel cycle. (6) Carriages may not be charged higher than 1,000 kilograms (2,200 pounds) per wheel; if the carriage weighs over 3,000 kilograms (6,600 pounds), the rims of the wheels must be at least 10 centimeters (about 4 inches) broad. (7) Not over 10 liters (10½ quarts) of oil, at the highest, may be stored in the carriage, and the oil must be stored in metal reservoirs. (8) The reservoirs, pipes, and valves must be perfectly tight to prevent leaking. (9) The residues of the fuel must be thrown out without damage to the surroundings. (10) The driver must be at least 18 years of age. (11) The driver must, on first call, show his permit to the policemen. (12) The number of the carriage, as prescribed by Government regulations, must always be visible.

It is amusing sometimes to observe how often some of the city police needlessly hold up drivers of automobiles. It seems to make no difference whether the machine is going 8 or only 3 miles an hour, the policemen on some of our street crossings seem to have an idea that a horseless carriage needs more watching than the horse-drawn vehicle, and as a matter of fact discrimination is quite often made against the automobilist in this respect.

A Heavy Steam Wagon

THE construction of wagons for the transportation of heavy loads is receiving considerable attention both here and abroad. There are lots of places in which the carrying of loads of from three to five tons can be accomplished to advantage by self-propelled vehicles, and in this connection it gives us pleasure to present our readers with a half-tone illustration and description of a wagon



The Speedwell Motor Wagon

built by the Speedwell Motor Car and Cycle Company, of Aberdeen, Scotland. As will be seen from the illustration, the engine and gearing are mounted on a steel frame and suspended between the front and rear axles. The engine is of the compound type, of 25 horsepower, having cylinders 4″ x 7″ x 5″ stroke, running 500 revolutions per minute. At this speed five and a half miles per hour can be covered with load on. The gearing used is made of steel and phosphor bronze. The platform is made of ash and can be removed very easily, thus allowing the use of any style of body necessary for the

work in hand. The wheels are of the military type, the rear wheels being 42 inches in diameter while the front are 36 inches. The boiler is carried in the front and is fired with coke, 500 pounds being required for a working day of twelve hours. The water tank capacity is about 120 gallons, sufficient to cover twelve miles with full load.

This particular vehicle has been used in running to and from Dunecht quarries, a distance of fourteen miles. The roads in that vicinity cannot by any means be called good for wagons at all. This lorry, however, takes an average load of five tons out and in, equal to ten tons, in between seven and eight hours. This includes time to load and unload, while a man with a two-horse wagon, carrying three tons, occupies fourteen hours altogether to come and go, returning with an empty wagon. So far, the company has every reason to be satisfied with the performance of these wagons, and has received quite a number of orders for them.

Senator Platt's bill, permitting the carriage on ferry boats of gasoline has become law. Never since the beginning of the fight has there existed any anxiety as to the final result. It is a distinct victory for owners of automobiles, and everywhere devotees of the new sport will be more than pleased at the news. It was not expected that any thoughtful man would take exception to the provisions of the bill, and such was the case. The fact, however, that the bill has become law should not exempt automobilists from exercising the utmost care while crossing on ferry boats when carrying gasoline. For the sake of the manufacturers, and owners as well, it is to be desired that all necessary precautions on the part of drivers be taken. At this stage no one can afford to be so careless as to cause even himself or his machine to be considered a nuisance. The unanimous passage of this bill shows at least that some notice is being taken of the unreasonableness of some laws which tend to operate against the more general adoption of the automobile.

A New "Packard"

WE illustrate herewith the latest production of the Ohio Automobile Company, of Warren, Ohio. This is an especially powerful carriage, and in it have been incorporated the results of last season's hard road use and experiments on their standard carriages. The company is especially pleased to be able to state that it has not found it necessary to make any change whatever in the general system of their carriage, that is in the type of engine, gearing,

The New "Packard"

frame, etc. This new carriage is provided with 34-inch wheels with 4-inch tires all around. It is fitted with wheel steering of the worm and segment type. The steering pillar is arranged to swing forward out of the way to give easy access to the seat and when brought back to position, is in the most convenient possible place. This is an advantage which will be greatly appreciated by experienced drivers. The engine is the company's standard four-cycle single-cylinder type, provided with automatically timed jump-spark ignition and spring-connected transmission. This automatic spark regulation and spring transmission give the remarkable smoothness of running for which the Packard carriages have become noted.

The company's standard system of gear pump and coolers which contain 60 feet of cooling surface, is provided. It is claimed that no changes whatever of cooling water are required, the heating being dissipated as rapidly as generated. Gasoline and oil tanks sufficient for a run of 180 to 200 miles are provided. A spur gear differential is used and an improved form of rim brake is fitted. These brakes act on auxiliary brake rims on the rear wheels and will hold the carriage in either a forward or backward direction on any ordinary grade. They also form a very effective safety device as they are operative even if the driving chain and rear axle itself are broken. By applying brakes separately to each rear wheel, the tendency to sluing on slippery pavements, which has been the dread of many an automobilist, is entirely overcome. The engine is rated at 12 horse-power and may be depended upon to drive that when necessary. The standard gearing is for 22 miles per hour, although a much higher gear can be fitted if desired.

A letter received from one of the pioneers in automobile work, says: "It has been a surprise to the writer that the public has been so slow about taking hold of the automobile, and a further surprise that it has apparently taken hold of the worst features first. There is an old saying in the mechanical world that 'the most complicated forms come first,' but it would seem that an intelligent public should be able to appreciate a good thing if offered them, and yet history has shown this not to be the case. They refused to take light bicyeles when first offered. The telephone went begging. The sewing machine was not believed in, and many labor-saving devices have been destroyed by angry mobs who thought their bread and butter was being endangered. We built better machines in 1895, 1896 and 1897 than many people are making to-day, but the public then were not ready. We are building to-day a very light, high-powered machine, and still find that many buyers prefer more iron for their money, which, coupled with less power, means a less efficient machine."

The Boston Show

THE abandonment of the Boston Automobile Show just when the day of its commencement was so near was the cause of more or less disappointment. Various reasons for this abandonment have been put forth and it is difficult for one to form a right opinion in the matter. Be that as it may, there are a great many who believed and still believe that had the show been held it would have been successful in a financial way at least. However, it is probable that the industry will be able to stand the shock. Shows, even automobile shows, become stale in time, and since last fall there have been quite a number, all in the East, too. Two in New York in November, 1900. First one in Philadelphia in January, and another in the same city in February. Then comes the Chicago show in March. It would be hard for anyone to argue that manufacturers have not had opportunity enough to show their products during the past few months.

To condemn and say shows are not worth the money put into them is unwise. They are good things when not carried to excess. It is the opinion of a great many that this, however, has been done as far as the automobile is concerned, and it is hoped that some arrangement can be made which will give us the happy medium in this respect.

Hotel Guide

THE Long Island Automobile Club has a board hung up in its rooms, which at first strikes one as a harmless, useless sort of thing. This board nevertheless serves an excellent purpose and is on the other hand quite useful.

For instance should any club member take a ride out to Rockville Center, L. I., and there find a comfortable hotel, one which was satisfactory from an "automobilist point of view," he is supposed to make it his business to get the card of the proprietor of that hotel, giving rates, accommodations, etc. If the hotel man cannot furnish a card, then the club member is supposed to write down on a piece of paper information as referred to above. On his next visit to the club room he will tack on the board referred to the card or piece of paper giving information concerning the particular house at which he put up.

If, some time afterward, another member has for some reason to visit Rockville Center he will look at the various cards on this board, all of which are classified according to letter, and so be guided to a comfortable and satisfactory hotel. If a member so wishes he can make such additional notes on his card as he thinks necessary for the benefit of fellow members.

This is a good scheme and might be followed with profit by other clubs.

In a letter recently written by Mr. A. J. Balfour to the London Browning Settlement on improved means of locomotion as a cure for the housing of London's working classes, he said:

"What I am anxious people should bear in mind is that trains, railways and 'tubes' by no means exhaust the catalog of possible improvements in transit. What I should like to see carefully thought out by competent authorities would be a system of radiating thoroughfares confined to rapid (say, fifteen miles an hour or over) traffic, and with a surface designed not for carts or horses, but for some form of autocar propulsion. If the local authority which designed and carried out such a system chose to run public autocars along them, well and good. It is, of course, obvious that the present difficulty of locomotion in our streets is almost entirely due to want of differentiation in the traffic. We act as the owners of a railway would act if they allowed luggage trains, express trains and horse-drawn trains to run upon one pair of rails. The radiating causeways, as I conceive them, would be entirely free from this difficulty. Neither traffic of cross streets nor foot passengers, nor slow-going carts and vehicles, would be permitted to interfere with the equable running of fast cars. There would be no danger and no block. No doubt the cost would be great."

The advent of the automobile makes most people believe that it is a new power vehicle, but it is not so considered in some countries. A report of the county surveyor of Kent, in England, says that there are 122 licensed engines and 314 registered engineers in the county, the former being almost constantly upon the roads. Most of them are hauling very heavy weights, which makes their pressure very destructive to the roads.

Endurance Test Under Auspices of Long Island Automobile Club

THE arrangements for the endurance contest to be held under the auspices of the Long Island Automobile Club have been practically completed. This event is to take place some time in April, and it is expected that it will stimulate great enthusiasm, not only among those who already own vehicles, but also those who are contemplating the purchase of automobiles. The Long Island Club has gone at this matter in a business-like manner, and great credit is due to the members who had the drawing up of the following rules. It requires a great amount of intelligent planning to arrange for a contest of this character in such a way as to insure fairness to all contestants. Again, the test is sure to be of value to Long Island roads, which are recognized all over the United States for their excellence.

For convenience in judging, it has been decided to divide the motive powers into classes. For each of these classes there will be three judges, each group to be composed of one member of the Board of Governors of the Long Island Automobile Club, one from some other automobile club, and a member of the press. Each of these judges are to have no entries or interest in the class in which they are judging. It is understood also that contestants are to be judged solely on the duration of stops, regardless of cause. The maximum speed limit will be 15 miles per hour, and the course (100 miles) must be covered within 12½ hours. There will be no restriction as to operation, but no change of drivers will be permitted after a start is once made.

The committee has adopted 500 minutes as a basis of computation in the matter of time. Timekeepers must take time from the actual stop to the actual start of wheels. The total time will be deducted from the unit chosen (500 minutes) and from this the percentage of efficiency will be calculated. All contestants are to provide their own fuel, water and battery relays, and vehicles must be stopped when taking on supplies or refilling tanks from detached containers. Every vehicle must carry its full complement of passengers, and entries will be confined to self-propelled vehicles, so built as to allow at least two passengers to sit side by side. It is distinctly understood that no time will be charged against a vehicle for stops made in compliance with the requirements of personal or public safety.

All vehicles completing the contest within the time limits named below will be entitled to an engraved certificate, showing their exact standing in the competition, and divided into classes as follows (Certificates and seals to carry ribbons of corresponding colors):

PER CENT.	CLASS	MAXIMUM DURATION OF STOPS		PER CENT.		MAXIMUM DURATION OF STOPS	
100	Blue Ribbon	0		V. H. C.	90	50	Minutes
99	Red "	5	Minutes		89	55	"
98		10	"		88	60	"
97		15	"		87	65	"
96	Yellow "	20	"		86	70	"
95		25	"	H. C.	85	75	"
94		30	"		84	80	"
93	White "	35	"		83	85	"
92		40	"		82	90	"
91		45	"		81	95	"
					80	100	"

NOTE—V. H. C. Very Highly Commended.
H. C. Highly Commended.

Each time-keeper will be provided with a schedule on which is to be entered by him in detail the length and character of all stops, giving the actual time of start, duration of each stop, and time of completion of full course. Each time-keeper to compare his watch with those of the judges immediately before and after the contest. Time-keepers and passengers can assist the driver only when the vehicle is stopped and the time penalty is being enforced. This means that the driver cannot relinquish even the steering apparatus to another while giving any attention to the carriage, such as replenishing water, making repairs, etc., while running. All stops must be timed irrespective of cause, and the cause shown on the schedule by the time-keeper.

These rules, it would seem, ought to cover all points likely to come up in the carrying out of such a contest. The outcome will be watched closely by automobilists in all parts of this and other countries. This seems to be about the best way of convincing the skeptical public that the automobile of to-day is something more than a toy; that when it starts out for a certain point it may be relied upon to reach it with as much certainty as the horse-drawn carriage. This is what people want to know, and this effort of the Long Island Automobile Club cannot help but be of decided value in that direction, if carried out in accordance with the rules outlined in this article.

Pat's First Motor-Car

Pat Murphy made a motor-car, one of the petrol type,
Four wheels were on the highway and many out of sight;
Four seats the car provided, two 'fore and two aft,
Not sideways, but both frontways, and that's what caused a laugh.
Full many a patent to that car the trustful Pat now added,
Band brakes, free-wheels, pneumatic tires and cushion seats well padded;
Electric lamps to light the way when he went record breaking,
And *silent* engines, so that all could hear each other speaking.
Said Pat, "If engines *one* do twenty miles an hour,
Well, surely *two* will *double* that, and *two* I'll have for power."
So *two* were added to the car, and *two* ignition tubes
Were placed beneath the foremost seat connected by a fuse.
Pat, ready for to try the car, sent post-cards to three friends
To join the festive party "for a fly down to Land's End."
The day arrived, the party too, all in tarpaulins clothed,
Four cans of petrol and of gin were in the car soon stow'd,
Pat saw his mates were seated before he manned the wheel,
And then he turned a tap, and the wheels began to squeal.
"Pip-pip" sang out the signal horn, "Phut-phut" the engines cried;
A violent jerk! a mighty plunge! and all the riders sighed.
The car proceeded not upon the journey mapped,
Nor did Pat leave the levers until the brake had snapped.
Then once again the levers were pushed and pulled and turned,
And Pat gazed at the works to see if the petrol burned,
But not an inch that car would move, because of imperfections,
For it is true, the engines *two*, worked in *opposite* directions.

EUSTACE B. BEESLEY, in *Motor-Car Journal.*

We were sorry to read in the papers the other day that the Olds Motor Works, of Detroit, had been visited by a fire which coming as it does at the opening of the season must to some extent cripple the work of this go-ahead concern. There cannot be any doubt, however, that soon the company will be on its feet again. At least it is hoped so.

Automobile Construction

IT would seem that a move on the part of our institutions of learning toward more specific instruction in those subjects which relate to the construction and operation of automobiles would be welcomed by a large class of men who are looking forward to employment in that branch of engineering. Some of those helpful institutions, the correspondence schools, might with great benefit not only to themselves but also their students, in some way pay more particular attention than they now do to questions involved in the application of gasoline and steam engines to road vehicles. Then again, the different evening educational classes held in our large cities could do some work in this direction.

There can be no doubt that as the automobile becomes more popular the demand for technical training in matters pertaining to it will be greater than ever, and the management of all kinds of institutions of learning would do well to consider the matter at least.

Every thoughtful automobilist will make it his business to learn all he can about the various parts of an automobile and their functions, and classes for the study of these things would seem to be an excellent means for imparting this knowledge.

A Test for Rubber

A GOOD test for rubber is as follows: Good rubber should not show any signs of surface cracks after being bent for five hours at an angle of 180 degrees in a closed air chamber at a temperature of 257 degrees Fahrenheit. Rubber containing about 50 per cent. of metallic oxides should stretch five times its length without breaking. Pure rubber containing just enough sulphur to vulcanize it should stretch seven times its length.

The St. Louis Automobile & Supply Company, Twenty-third and St. Charles Streets, St. Louis, Mo., desire to announce that they now have the following representatives in New York, Chicago and Hartford: Messrs. Chas. E. Miller, 97 Reade Street, New York; Ralph Temple, 291 Wabash Avenue, Chicago, Ill., and Messrs. Post & Lester, Hartford, Conn.

New Club House of the Automobile Club of New England

By O. L. STEVENS

CLUB-HOUSE talk has been rife among Boston automobile organizations ever since the two principal clubs came into being eight or nine months ago, but it was not until Washington's Birthday this year that a house was formally opened. The Automobile Club of New England was the owner, and it did itself proud. It found a place out in the country section of the aristocratic town of Brookline, in the midst of a delightful district and with fine roads extending in all directions; and best of all, an estate which had already been adapted to the needs of a driving club. Horses, not automobiles, were the former interest, to be sure, when the old Suburban Club held the property; but the approaches and stables required comparatively little alteration to make them thoroughly in keeping with automobile requisitions, and the house itself—well, it was a club house, and as such was as well adapted to automobile drivers as to those who held reins over the backs of horses.

This club got its charter in January of this year. The incorporators were Mr. Arthur W. Stedman, a West Roxbury man in business with George A. Alden & Company, Boston; Mr. George E. McQuesten, a prominent lumber merchant, of Brookline; Mr. Knight Neftel, manager of the Electric Vehicle Company's Boston station; Mr. C. L. Edgar of Brookline, president of the Edison Electric Illuminating Company; Mr. Carl L. Morgan, assistant purchasing agent of the Edison Company; Mr. Francis R. Hart of Milton, vice-president of the Old Colony Trust Company; Mr. M. S. P. Williams; Mr. Jere Campbell, of the Metropolitan Coal Company; Mr. Royal R. Sheldon, Brookline, of the Chelmsford Foundry Company; Mr. Walter A. Underwood, a well-known banker, of Brookline; Mr. Henry Howard, superintendent of the Merrimac Chemical Company; Mr. F. E. Stanley of "Locomobile" fame, Newton; Mr. Spencer C. Crane, of Boston; Hon. George L. Meyer, now Ambassador to Italy; Mr. F. O. Stanley, of Newton, and others. Mr. Stedman was made president, and as he and other of the incorporators were also members of

the Country Club of Brookline, the most exclusive organization for outdoor sport near Boston, and one which has more love for the horse than almost anything else, the effect was to balance the new automobile club very nicely against the Country Club. This was emphasized by the fact that the Country Club grounds were entered from Clyde Street, almost opposite the estate of the automobile club. Mr. Hart was made vice-president, Mr. McQuesten secretary, Mr. Sheldon treasurer and the executive committee, which practically runs the club, now consists of Messrs. Underwood, F. E. Stanley, K. Neftel, H. Howard, C. L. Edgar, George T. Dexter and J. A. Burnham, Jr.

Fig. 1. Club House of Automobile Club of New England, Brookline, Mass.
Courtesy of Boston *Herald*

By the time the articles of incorporation had been made out, some of the leading members had secured control of the estate, which is now the club headquarters; and by dint of considerable hard work, the place was ready for the housewarming on February 22, Washington's Birthday. Invitations were sent out to all who had a friendly interest in the organization, and all the afternoon and evening of the holiday an electric 'bus was kept running between the nearest station of steam and electric cars, a mile or two distant and the club house, for the accommodation of guests. A snow storm interfered somewhat with the evening's pleasure, but forty or fifty persons visited the house and

enjoyed the good cheer provided there. Supper was served in the evening. What everybody wanted to see was the house itself, and it was all lights from piazza to roof. As one enters from the broad veranda he finds himself in a long hall extending through to a door at the farther end, and promising cool breezes on summer nights; on the left, doorways at each end open into the large reading room or loung-

Fig. 2. Ladies' Parlor on Second Floor
Courtesy of Boston *Herald*

ing room for members, tastefully carpeted, and furnished with heavy oak tables and comfortable easy chairs, a small table or so in the pleasant bay windows, and in front of the cheery open fire two big leather-upholstered settles, in themselves an invitation to comfort and ease. Few pictures have yet been placed upon the walls of this or the other rooms, but Mr. Charles J. Glidden has presented a picture of his new

Napier machine, which he is to bring back from abroad with him this season, and other souvenirs and symbols of automobiles and automobilism will gradually be gathered to adorn the vacant spaces.

Across the hall from the lounging room is the main dining room. The bar of the former club still survives, but the present club makes no use of it, since as a club it will serve no liquors. Beyond the dining room, however, a passageway leads to a locker room, where each member will have a locker; and farther still, toward the wing of the house, is to be found a smoking room, retiring room, and finally a pantry and kitchen, fitted with a fine grill and range, suitable for providing luncheon whenever a hungry group of members put in an appearance. Up stairs, the room over the members' lounging room is comfortably transformed into a parlor for ladies, and is wholly separated from the other rooms. The rest of that floor is cut up into smaller rooms, which will be used for private dining rooms, or chambers. Lavatories on this floor and on the floor above are of the most modern sort and finished in marble. The chief room on the third floor is a large billiard room, with several smaller rooms available for sleeping apartments.

The side door on the ground floor of the house leads by a short path to the sheds and stables, which form a line of buildings more than twice the length of the house, and sitting slightly lower. A large double shed, with earth floor, is counted on for storage of carriages at the time of special gatherings in summer; and just beyond these is the main shed, floored with wood, and affording standing room for a dozen or fifteen carriages. There were two or three "Locomobiles," as many more electrics, and a new gasoline runabout there the evening of the opening. This shed has furnace heat, and does away with all trouble incident to low temperature. It contains also the water supply tank, a big drum raised to the height of the ceiling at one end, and supplied with a big two-inch hose and special stop-cock, so that a carriage tank may be filled in a trice without overrunning. A special gasoline tank is also provided, which measures the gasoline as it pours, so that each member knows just when he's got enough and how much he is to be charged for.

Adjoining the main shed is a small stable, where three or four stalls have been allowed to remain, in order that members who wish to drive to the club and then take out their automobiles for an extended spin may put up their horses meantime. Little of this kind of business is expected, however, for one end of the little stable is set off for the

small engine which runs the recharging apparatus for electric vehicles. There are spacious lofts above for repair shop and supplies.

An interesting thing about the club, in its relation to the Country Club across the way, is that whereas the latter, some time ago, after a little controversy between its automobile members and the strictly "horse" men, decided that only horse-drawn rigs should approach

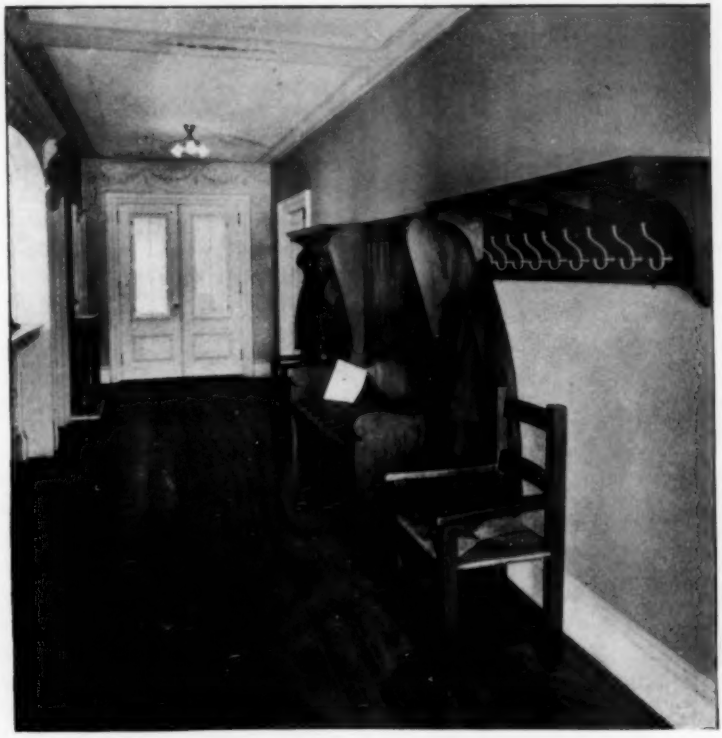


Fig. 3. Hall on Ground Floor
Courtesy of Boston *Herald*

the club house by the main drive, and that automobiles should go in only by the drive leading to the stables and side-door, the Automobile Club exactly reverses this. Beside the old-fashioned swing sign which marks the entrance to its main drive is a sign stating that only automobiles may use that entrance, and that horses will be allowed to

enter only at the stable entrance around on the other road. It is a little circumstance that is causing some amusement. Perhaps it is significant, too, for as the membership of the two clubs seems to be rather closely interrelated, it may be that in time the Automobile Club will absorb all of the strictly automobile interest from both organizations,

Fig. 4. Members' Lounging Room
Courtesy of Boston *Herald*

while the Country Club does the same thing for horses. There are reasons for believing that this would be an agreeable arrangement for both organizations.

The New England Club is planning to make its new house the center for a number of long and short-distance tours and competitive runs

this summer, for club members, and it will probably see also many informal gatherings for swift rides over the delightful roads of the district in which it is situated. Incidentally it makes a pleasing and handy starting place, for both house and stables are provided with telephone, and at the stables members are provided with all supplies, repair implements, the best lubricating oils, and expert attendance, while the service in the house is such as to offer rest and refreshment at all times. The club expects to hold its annual open track race at Newport, as a feature of one of its club runs. It has already announced that some suitably inscribed trophy will be given as a prize in this and each of the other events.

Much of the credit for getting the new club quarters in order so acceptably is due to the house committee, consisting of Mr. George E. McQuesten, Mr. Walter A. Underwood and Mr. George T. Dexter; while in planning and preparing the stable fittings a committee consisting of Mr. Knight Neftel, Mr. Henry Howard and Mr. F. O. Stanley has proved itself commendably efficient.

At a recent meeting of the Rhode Island Automobile Club, Mr. Joseph P. Manton, one of the members, entertained his hearers with a description of a steam carriage which he bullt in 1866. This was the first horseless carriage seen in Providence, and it is claimed had a speed of 15 miles an hour. It was not very practical as sufficient fuel could not be carried to run it any great distance. The coal was carried under the seat. A large boiler was used and required considerable coal and water. The carriage was used for some months by Mr. Manton, but the great difficulty was the unsurmountable fuel arrangements which rendered the carriage unfit for everyday use.

The Trinity Cycle Manufacturing Company, of Keene, N. H., has sold its plant and business to the Steamobile Company of America, who will continue the repair department and in a small way the manufacture of cycles in connection with their main business, which is the making of steam motor vehicles. Mr. E. P. Wells is the President and manager of the new company, which was recently incorporated with an authorized capital of $500,000; $150,000 of which was paid in.

Which Tire Shall I Use?

THE question of the efficiency of pneumatic tires as generally practical for automobiles is one which has been discussed quite thoroughly in the automobile press. There are those who claim that the pneumatic tire is just the one, while others think differently. As argument against pneumatic tire, men bring up the many delays caused by punctures. In doing so they do not condemn the pneumatic tire so far as comfort of riding is concerned, but merely in the matter of annoying delays caused by punctures.

This has naturally caused an increased tendency to the use of solid tires as the only means of relief. The intent of this article is not to draw comparisons between different makes or styles of tires but merely to show that pneumatic tires can be and are in fact being made which free the operator from the troubles arising from punctures, chafing, etc.

The automobile public from the beginning has demanded cheap tires, and this has resulted in the manufacturers turning out just what was demanded of them. The automobilist might as well understand now as any other time, that a good, reliable and satisfactory pneumatic tire cannot be made at the prevailing market prices. If the automobile owner desires to get tires which will not cause the annoyance so incidental to tires in the past, he must put himself into such relation with the manufacturer as to lead the latter to ask himself the question, "not how cheap, but how good shall I make my tires?" All the blame must not be put on the manufacturers.

There can be no doubt whatever that for touring and country riding so far as economy and comfort are concerned the pneumatic tire is the ideal one. If, however, a more satisfactory form of pneumatic tire is desired, more material must be used, and a resultant increase in price.

Then, again, it is to be feared that too much stress has been laid upon "resiliency" and not enough about the correct distribution of weight of vehicle. There are probably numerous builders who would get better results from the tires if more care were given to this point.

To be satisfactory a pneumatic tire should have in it more rubber and fabric and less air than is now generally used. Should such a tire be cut there is much less liability of being stalled on the road, and we must not forget that every automobile stalled by the roadside is an argument in favor of the horse. The tire problem is a hard one, yet if a more liberal use of material was made and less air, better results would be sure to follow.

(We desire those interested in both the manufacture and operation of Automobiles to send in for use, in this department, whatever they think may be of interest to us or our readers.—EDITORS.)

The Stanley Burner

REFERRING to the article in your March edition, by Hugh Dolnar, entitled "The Final Automobile," I note on page 285 mention is made of the Stanley burner for steam boilers, which burns kerosene. Kindly advise where I may obtain more information upon this subject, also if there is a place in this city where such a burner may be seen, and oblige yours truly,

BROOKLYN, N. Y. R. E. TAYLOR, M.E.

[Mr. Dolnar informs us that the only concerns who could sell a Stanley burner are Stanley Brothers, Newton, Mass.; Mobile Company of America, Kingsland Point, Tarrytown, N. Y.; and Locomobile Company of America, whose New York office is 11 Broadway. He states, however, that it is doubtful if either of these companies would be willing to sell a burner to anyone not a buyer of a Stanley wagon.—EDS.]

Frankness of Discussion

AT a recent gathering of automobilists, both manufacturers and owners, the meeting resolved itself into a sort of experience meeting. Different ones related their joys and troubles. Some of the laymen present declared in no uncertain terms that the machines as turned out did not begin to give the service claimed for them by the builders. The remarks were not directed at any particular machine. A prominent manufacturer protested against such remarks regarding the automobile, saying that such discussion could not possibly be of benefit to the industry, but would rather operate against it.

Such a protest on the very face of it does not appear correct. If the merits and demerits of different carriages are to be discussed at all there is no more fitting place than in just such gatherings as these. There may be of course times when disagreeable things will be said regarding certain vehicles, but frankness is necessary in the automobile business as well as in other branches of industry. There is scarcely anything more harmful to any business than a disappointed customer. If manufacturers and users can get together and discuss the relative merits of the different machines from their respective points of view much good will be accomplished.

As one user remarked: "There is such a fascination about running a carriage that motes that we would all want one if it gave twice the trouble that it does."

NEW YORK. H. A. WILSON.

A Question of Tires

WILL Mr. George E. Greenleaf kindly tell us what make of tire he used on his carriage after he discarded the pneumatic? Hoping to hear from you in the next issue of your paper, I beg to remain very respectfully yours, C. H. D.

[We referred this inquiry to Mr. Greenleaf, and in reply that gentleman wrote:

Replying to your favor, it gives me pleasure to advise you that the tire of which I wrote is known as the New York vehicle tire, and is made by the New York Belting and Packing Company, 25 Park Place, New York, N. Y. It is my belief that your correspondent's trouble will end if he adopts that tire. They are a little more difficult to apply to the rim than the ordinary pneumatic tire. If your correspondent cares for it, I shall be pleased to advise him of the easiest method I have found for putting them on. It may save him considerable annoyance that I had when applying the first tire. Yours very truly, GEORGE E. GREENLEAF. EDS.]

Large vs. Small Wheels

THE writer has been a student of wheel construction since the early days of the cycle and has fully believed in small wheels, having tried to introduce 24-inch wheels for cycles, believing that a small wheel and large tire was better than the reverse. The cycle public, however, would not accept in any quantity, wheels smaller than 28-inch and this fact coupled with the other fact that although many sizes of vehicle wheels have been used, horse vehicles are to-day built with wheels averaging nearly four feet, seems to indicate that this theory of small wheels is wrong. Even if this should not be true, the fact that they refuse to buy smaller wheels settles the question without argument and manufacturers must supply what the public wish.

If the voice of the public means anything on these two classes of vehicles, it indicates that the motor vehicle wheel should be of large diameter. The pneumatic tire will permit a smaller wheel than the common horse vehicle wheel but the greater weight and higher speeds indicate a necessity for larger wheels, so we believe that motor vehicle wheels cannot be greatly smaller than those used on other vehicles.

Since we began constructing motor vehicles in 1891, we have used wheels ranging from 50 inches down to 30 inches and are now using 30-inch front and 36-inch rear, with 3-inch diameter tires, having the greater portion of their section above the rim, which arrangement is the most satisfactory we have yet found and is appreciated by the public so far as shown. We seldom or never have calls for smaller wheels but do have calls for larger from the rougher parts of the country, which indicates, in a small way, the feeling of the public on this subject. A large wheel requires less power to propel, causes less vibration, has more tire contact on the ground and is generally more advantageous than the small wheel, except in the matter of strength and weight.

The ordinary wooden wheel, however, has been brought to such perfection of workmanship and material that we find no difficulty in the matter of strength, while our wheels are lighter, we believe, than many wire wheels of smaller size and equal strength. We believe firmly in the wood wheel because of its long life, ease of cleaning and generally good appearance and the facility with which it may be repaired by wagon makers throughout the country.

READING, PA. CHAS. E. DURYEA.

Automobiles in Our Cities

WE have all heard—and dreamed—of the time when the clatter and thud of the horses' feet upon our pavements, its dust and its din, should be relegated with the ox-cart to the past, and the automobile should spin upon pneumatic tires over smooth asphalt pavements like a bird floating on air. The recent automobile shows have done more to fix the status of the automobile in the public mind upon a practical footing than anything since their introduction. The people are awakening to its practical side, its great pleasure and economy, and are ready to adopt it.

It goes without saying that the change would be a great improvement in all that stands for advanced civilization—refinement, cleanliness, sanitation, etc. Naturally, we are led to inquire how we may best facilitate this change. It appears almost certain that the first general or considerable adoption of the automobile will be in the city and for pleasure purposes. A system similar to that employed to secure the adoption of wide-tired wagons upon the country highway may well be brought to bear in favor of the automobile. First the taxes upon the machines themselves may be remitted or even a larger amount may be deducted from the taxes of the owners. Then when the number of automobiles shall be increased sufficiently to warrant it the horse may be wholly excluded from the boulevards, pleasure drives and parks.

But before this could be brought about there would most likely come a grand "kick" from the horse owners. Now let us see if there be any warrantable cause of complaint or anyone really injured thereby. Have we not already excluded heavy and unsightly traffic from our boulevards? Imagine a man who should presume to keep a yoke of oxen and drive them upon a fashionable boulevard. Since our boulevards are created solely for purposes of pleasure, can horse owners under such an advanced and superior system of transportation claim any more rights than the undesirable classes of traffic now excluded? Furthermore, in cities pleasure turnouts are not kept by the poor nor by any that could not readily adopt the new mode of conveyance, so that it would entail hardship upon no one, while all would be gainers by the improved sanitary conditions, less room required, greater economy, etc. And once having the horse entirely removed from the

boulevards we should have asphalt pavements of perfect smoothness with no horses to stamp their feet into the asphalt, and then the automobile would spin with that extreme smoothness and freedom from interruption otherwise impossible.

Now do you take in the full possibilities—a system of transportation upon our streets, smoother, more perfect and refined than the finest palace car; no horses to impede, to clatter and pound, or frighten and become unmanagable; nothing to cause dust or dirt upon the street, and everything moving in clean, silent, untrammeled, perfect smoothness? Then we should have a better condition of things, without any act more stringent or arbitrary than those we have already adopted to make our boulevards what they are. What an object lesson some of our large cities with well laid driveways could evolve in a few years! Other cities would hasten to imitate and emulate. It would be worth more than any amount of argument and theorizing to secure the speedy and general adoption of the automobile. This is not to say that a high development of automobilism is impossible without the total exclusion of the horse, but simply looks to its final perfection, and the proposition when rightly judged is not a discrimination, but simply recognizes the fact that the automobile facilitates a larger volume of traffic, is cleaner, and causes less wear and destruction of pavements, and gives to each credit according to their deserts.

The pleasure drives from their very nature simply offer the easiest and most effective place to inaugurate this system, and bring automobilism to its fullest perfection. And with the establishment of an all automobile traffic and its great advantages upon the boulevards would come a popular demand for the same thing upon the other streets. While the substitution of automobile-buses for surface cars, and the restriction of rails to the elevated and underground lines would be only another step in the transformation of our cities.

BURR OAK, MICH. H. C. WAITE.

We have received a copy of "The Construction of a Gasoline Motor Vehicle," by L. Elliott Brookes. This gives complete details regarding a vehicle built by the author. Working drawings are given. The subject is treated in an interesting manner and the book ought to be of interest to those interested in the construction and operation of gasoline motor vehicles. The book is published by the *Motor Age*, Chicago, Ill.

E. R. Thomas Motor Bicycles

THERE can be no doubt that the motor bicycle fills a want. There is much to commend it to those who enjoy a ride through the country, and one of the leaders in the manufacture of these machines is the E. R. Thomas Motor Company of Buffalo, N. Y. This concern has made most conclusive experiments, and has succeeded in turning out a most satisfactory motor bicycle. Each motor is

The Thomas Motor Bicycle

thoroughly inspected and tested at the factory, and thoroughly proves its efficiency before shipment.

The various departments are in charge of gentlemen who have had quite a large and varied experience in their various lines. The company reports that large shipments are being made to many foreign countries. Anyone capable of riding an ordinary wheel can, with very little effort, learn to manipulate the motor bicycle.

The Automotor Journal, of London, recently published a list of the principal limited liability companies engaged in automobile manufacture which have been wound up voluntarily or dissolved during 1900. The total was thirty, only six of which are likely to be reconstructed.

An Early Steam Wagon

THE following letter taken from the *Canadian Electrical News*, of February 25, may be of interest from an historical point of view:

Editor Canadian Electrical News:

DEAR SIR: In looking again at yours of the 3d inst., in relation to my paper on "The Progress of the 19th Century," I find that you are kind enough to say that you were interested to learn I was one of the original inventors of the steam vehicle, and would be pleased if I would give a more detailed description of the apparatus. You go on to add that in view of the recent development in this direction, a description and illustration of my invention would be interesting.

Now, Sir, I have at present time but a faint remembrance of Trevethick's steam coach for common roads, and I suppose you would like to know in what I declare my vehicle to be an improved one compared to his. It is this, if I remember well, that while Trevethick's motor was a single engined one without a fly-wheel to get it over the "dead points" when it happened at an impediment in the roadway, my machine was a double cylindered one, whereby, the cranks on the axle being at 90° apart, the dead points were got over by one of the the pistons being only half way on its travels, while the other was at the turning point and thus capable of exerting a force necessary to overcome any inequality in the paving or macadam. The twin engines were of the ordinary "working beam" type, with parallel bars at one end engaging the cross-head of the piston rod working in guides as usual, while a connecting rod at the opposite end of the oscillating or working beam engaged the crank on the axle or shaft of the vehicle on which the wheels of the automotor were mounted, while a third wheel of less diameter, and capable of running in under the carriage to which it was attached by a bar twining or a swivel, was used to steer the wagon and turn it when required end for end in a radius of a few feet.

This vehicle, as stated, I built in 1844, working at it after hours and on holidays, as I was then a pupil in the Quebec Seminary. I was helped at it by another boy, one Federick Holt since burnt at the fire of an old Quebec theatre, and whose father, a German, was for several years organist of the French Cathedral, now the Basilica, Quebec.

It may be foolish now to say so, but I was ever so much pleased

when on letting steam into the cylinders for the first time, I found I had placed the eccentrics so exactly as not to require their position to be altered in the least to admit and cut off steam at the absolute moment of time necessary to prevent any loss of power whatever by back pressure. The two engines were built entirely by ourselves, including the drilling of every hole and the making of every screw, bolt and nut in the whole concern; while all we got done by outsiders were the boiler, a horizontal one, some two feet in diameter and 3 feet long with a 15-inch fire flue within it, and the three wheels, which we had made by a regular wheelwright.

The cylinders were, I believe, about 3 inches inside diameter or less, and some 8 to 9 inches long, the pair developing under steam at 30 lbs. pressure about 1 horse-power or more, which drove us along the road at from 8 to 9 miles per hour, the weight upon the driving or bearing wheels being hardly more than 1,200 to 1,500 lbs. all told, or with from two to four persons in the vehicle. I need hardly add that, of course, it was in no way comparable to the automobiles of the present day. CHAS. BAILLAIRGE.

QUEBEC.

Upon seeing this letter, we corresponded with Mr. Baillairge, and in reply, he says;

DEAR SIR: Many thanks for your kind appreciation of my efforts of 1844; but as photography was, at that early date, hardly known in Quebec, am sorry I cannot oblige. The wagon was nothing but a rectangular box-like construction of some 4 feet wide and 6 feet in length; the boiler at center and the twin-beam engines on either side of it. The boiler so raised that the crank-shaft and axle of the wagon rode beneath it from wheel to wheel. A standard with cross-head rose from the front wheel for steering. Yours, C. BAILLAIRGE.

Of Passing Interest.

(Readers will confer a favor upon the editors of this magazine by sending in any interesting item of news suitable for this department.)

Vulcanized India rubber to be used in making tires will float in water if it is not adulterated.

Mr. Wm. Rockefeller has recently purchased one of the Ohio Automobile Company's new "Packard" machines.

The De Dion-Bouton Motorette Company informs us that Mr. Maurice Loeb no longer represents them in Philadelphia.

F. E. Towle, Jr., delivered an interesting talk on Wednesday, March 13, before the Long Island Automobile Club on the handling of a steam carriage.

Mr. A. W. Chamberlin, formerly with the Winton Motor Carriage Co., is now representing the Automobile Company of America, with headquarters at 57 West Sixty-sixth Street, New York City.

As showing the rapid increase in the use of the automobile, it may be interesting to note that since Fairmount Park, Philadelphia, opened its gates to automobiles in 1900, no fewer than 6,693 horseless vehicles have entered the famous pleasure ground.

From present indications automobile activity will this spring and summer be much more pronounced than ever before. Letters recently received at this office from automobile club officials are just brimming over with anticipation of a very busy season. All along the line arrangements are being made for runs, tours and races.

Recently a trial of electric vehicles was held in Berlin in which the battery taking first honors weighed only 121 pounds per kilowatt hour. There were thirteen vehicles participated. It is stated that in nearly all instances it was demonstrated that electrically-propelled vehicles should be driven at their highest speed consistent with public safety, if the best results are to be obtained.

Now that many people are beginning to look into the automobile with a view to purchase, there are a great many who are hoping that horseless vehicles during 1901 will be reduced in price. There is at present, however, very little indication that horseless vehicles generally will be cheaper than in the year just closed. There is rather a general tendency on the part of manufacturers to increase their prices.

The Herald Square Automobile Exchange is the name of a new storage station and general automobile salesroom to be soon opened at 147-151 West 35th Street, this city. H. F. Blake, late of the Manhattan Automobile Station, will be manager. The establishment will be fitted up with smoking, dressing and waiting rooms, lockers, etc. Competent machinists will be on hand. The place will have a floor space of 70,000 square feet.

There is a considerable amount of genuine interest being manifested in the heavy motor wagon, whether propelled by steam, gasoline or electricity. Reference is here made to the heavy wagon with a load capacity of from three to five tons. It is not to be supposed that very extensive use will be found for trucks with much greater capacity than five tons, not only from an economical standpoint, but because of the effect such a weight would have upon city streets. Judging by the inquiries received at this office for information as to the progress along these lines, there ought to be much business in this end of the motor vehicle industry.

The Automobile and Cycle Parts Company is the name of a new company recently organized, with head officers at Cleveland, O. The authorized capital stock is $5,000,000. The offices of the new company are as follows: President, A. L. Garford, Elyria, O.; Vice-President, M. B. Johnson, Cleveland, O.; Treasurer, F. N. Smith, Elyria, O.; Secretary, F. E. Lytle, Cleveland, O. Mr. Johnson was also chosen to act as chairman of the executive board. The directors are as follows: A. L. Garford, J. D. Clime, Windsor T. White, M. B. Johnson, E. H. Bourne, J. C. Hill. Mr. Garford has held the position of treasurer of the American Bicycle Company since its organization two years ago, and recently resigned to organize the new company. It is the intention of the new company to engage heavily in other forms of manufacture than those having strict relation to the bicycle industry. A start will be made with automobile parts, which

will be manufactured in such variety and volume as to greatly expedite the production of motor carriages.

One thing which the French automobile manufacturers enjoy is the support given them by members of their government. That the industry is fully appreciated and fostered by men of authority in that country is evidenced by the remarks of President Loubet, made upon the occasion of the Automobile Salon, recently held in Paris. He said: "I know that races are necessary; we do not forget that, you may rest assured, and we know also that races when well organized, are not dangerous. All that is wanted is to forewarn the public that a race is about to take place. Do not believe, whenever you make a request to us on this subject, that we shall refuse you permission. We will grant it, on the contrary, with pleasure."

The following figures show the French imports and exports for the past three years so far as cycles and automobiles are concerned:

	1898.	1899.	1900.
Imports.			
Automobile carriages, at 10 frs. the kilog.	395,070	472,650	509,000
Cycles and motocycles, at 18 frs. the kilog.	8,925,320	7,942,050	5,536,800
Carriage work	864,318	749,820	612,000
Exports.			
Automobile carriages	1,749,350	4,259,330	9,410,000
Cycles and motocycles	10,654,000	10,153,530	7,919,000
Carriage work	2,157,295	4,274,039	3,053,596

It will be seen that while both the import and export of cycles and motorcycles have decreased, the automobile figures have steadily gone up.

Across the Desert

(Foreign Notes in Automobiling)

A CAIRO correspondent writes that he has recently met a man to whom a commemorative tablet should be erected for having first demonstrated a practicable route across the desert to Suez. This enterprising Frenchman, accompanied by Prince Aziz, cousin of the Khédive, has just successfully traveled this route in an automobile!

The desert is narrow—not over 170 miles as the crow flies—intersected by a trail hardened by the sun and the eternal passing of the years, along which a few unfortunate pilgrims toil toward Mecca, at rare intervals, under the parching sun. Over it once passed Bonaparte on one of his expeditions—camping one yule-tide at the foot of

the sacred tree of Hamrâ, sole product of the desert, covered with signs and objects of Arabian worship—and arriving at Suez after a three days' march, five days being the accustomed time consumed by pilgrims across these sands, till, at last, it has been abandoned as too fatiguing, until this new method of overcoming time and space by means of the automobile has reopened possibilities for travel.

This first voyage is described as picturesque and original in its developments, and was accomplished in ten hours. Almost immediately after entering the desert the groom was attacked by a Bedouin and stripped of everything in his possession, even his badge of the Touring Club!

At one point they were obliged to harness themselves to the vehicle for the purpose of hoisting it over an embankment formed by the railroad that once crossed the desert, but which is now as forgotten and deserted as the trail.

Flying onward between sand hills, they leap a pass, reach a large open plain, strike into the old mail-post track of the Indes, and Mt. Moutala looms before them; this is crossed at full speed and, passing the old fort, they come to a sudden halt: night has fallen; canals intersect the route, and the machine must be left on that side.

So, after this halt, they have reached Suez and the journey is accomplished. The route has then been proven difficult but practicable and, at length, the awesome solitude of the desert has been violated and overcome, and projects are already on foot for constructing special machines with flattened wheels adapted to this sand track.

It's not too sanguine to expect that by next Winter, therefore, two trips a week, across the desert from Cairo to Suez, will be run on schedule time at, say, about twenty dollars for the round trip!

By this route the long swampy depression that borders Egypt, with its swarming, crowding mass of humanity, will be avoided; this valley, beautiful doubtless, but humid, and beautiful in like manner as any agricultural district, overhighly cultivated, with its fields forever green and always producing three crops per year, unvaried, without woods, meadows, flowers, brooks or rocks—charmingly monotonous.

For long years, encroaching upon the vastnesses of desert and forest solitude, they have contemplated building a village at the foot of the Pyramids with sanitariums for utter rest and repose in this bosom of silence and light. It now becomes a dream which may be realized by every Egyptian if the automobile succeeds in replacing the caravan as the tramway has dethroned the pack-mule. A. L.

Automobile Club Directory

Under this heading we shall keep a record of the motor vehicle clubs both of this and other countries, and we hope to have the co-operation of club officers in making it accurate and complete.

*Corresponding clubs of the Automobile Club of America are designated thus *.*

Automobile Club of America, Malcolm W. Ford, Secretary, 203 Broadway, New York ; representative on International Racing Board, Clarence Grey Dinsmore ; Substitute, John H. Flagler.

Automobile Club of New Jersey, Secretary, Dr. H. Power, Montclair, N. J.

Automobile Club of Baltimore, W. W. Donaldson, Secretary, 872 Park Avenue, Baltimore.

Automobile Club of Brooklyn, Secretary, C. Benton Dix, Hotel Clarendon, Brooklyn.

*Automobile Club of Columbus, O., C. M. Chittenden, Secretary, Broad Street.

Chicago Automobile Club, Secretary, H. M. Brinkerhoff, Monadnock Block, Chicago.

Indiana Automobile Club, Indianapolis, Ind. Secretary, August Kabich.

Long Island Automobile Club, Secretary, Charles W. Spurr, Jr., 552 State Street, Brooklyn.

Automobile Club of New England, Secretary, Geo. E. McQuesten, Brookline, Mass.

*Cleveland Automobile Club, L. H. Rogers, 357 Amesbury Avenue, Secretary, Cleveland, O.

*North Jersey Automobile Club, E. T. Bell. Jr., Secretary, Paterson, N. J.

*Automobile Club of Rochester, Frederick Sager, Secretary, 66 East Avenue, Rochester, N. Y.

Massachusetts Automobile Club, President, J. Ransome Bridge ; Treasurer, Conrad J. Rueter ; Secretary, L. E. Knott, 16 Ashburton Place, Boston, Mass.

Pennsylvania Automobile Club, Secretary, Henry J. Johnson, 138 No. Broad Street, Philadelphia.

*Philadelphia Automobile Club, Frank C. Lewin, Secretary, 250 No. Broad Street, Philadelphia, Pa.

Automobile Club of Bridgeport, Secretary, Frank W. Bolande, 208 Barnum Avenue, Bridgeport, Conn.

Rhode Island Automobile Club, Secretary, Frederick C. Fletcher, P. O. Box 1314, Providence, R. I.

San Francisco Automobile Club, B. L. Ryder, Secretary, San Francisco, Cal.

Columbia College Automobile Club, Lewis Iselin, Secretary, Columbia College, New York, N. Y.

*Buffalo Automobile Club, Secretary, Ellicott Evans, The Lenox, Buffalo, N. Y.

Worcester Automobile Club, Worcester, Mass., President, J. W. Bigelow ; Vice-President, Edwin Brown, Marshal, W. J. H. Nourse; Treasurer; B. A. Robinson ; Secretary, H. E. Shiland.

AUSTRIA.

Budapest—Magyar Automobil Club, 31 Musem Korül.

Innesbruck—Tiroles Automobil Club, Rudolph-Strasse 3.

Prague—Prager Automobil Club.

BELGIUM.

Antwerp—Automobile Club Anversoir, 34 r. Longue de l'Hopital ; President, Baron de Bieberstein.

*Brussels—Automobile Club de Belgique, 14 Pl. Royale ; Moto-Club de Belgique, 152 Boul. du Nord ; Touring Club de Belgique, 11 r. des Vauniers.

Charleroi—Automobile Club de Charleroi, Hotel de Esperance.

Ghent—Automobile Club de Flandres.

Liege—Automobile Club, Liegeois, 2 r. Hamal.

FRANCE.

Amiens—Automobile Club de Picardie, 36 r. de La Hotoie.

Avignon — Automobile Club de Avignon.

Bordeaux—L'Automobile Bordelais.

Dijon—Automobile Club, Bourguignors Cafe Americanie.

Lyon—Bicycle et Automobile Club de Lyon ; Motor Club de Lyon, 3 pl. de la Bouise.

Marseilles—Automobile Club de Marseilles, 61 r. St. Fereol.

Nance—Automobile Club, Lorrain, Thiers pl.

Nice—Automobile Velo, Club de Nice, 16 r. Chauvain.

*Paris—Automobile Club of France, 6 pl. de la Concorde ; Motr-Club de France ; Touring Club de France, 5 r. Coq-Héron.

Pau—Automobile Club, Bearnais Ave. de la Pau, President, M. W. K. Thorn.

Périgueux—Veloce Club, Perigourdin, Hôtel de Commerce.

Toulouse—Automobile Club, Toulousain Café Riche, pl. St. Etienne Société des Chaffeurs du Midi, 25 r. Roquelaine. President, M. Gay.

GERMANY.

Aachen (Aix la Chapelle)—Westdeutscher Automobile Club, Hotel Grand Monarque.

Berlin — Mitteleuropaischer Motor Wagen Verein, I. Universitatstrasse, Herr A. Klose ; Deutscher Automobil Club, Liusenstrasse, 43-44.

*Deutscher Automobil Club, Liusenstrasse, 43-44. President, S. D. Herzog, Victor von Ratilin.

Dresden—Radfahrer-und Automobilisten Vereinigung; Dresdener Touren Club.

Eisenach—Mitteldeutscher Automobil Club ; Motorfahrer Club, Eisenach.

Frankfort am Main — Frankfurter Automobil Club, Restaurant Kaiserhof.

Munich—Bayer. Automobil Club, 33 Findling Strasse.

Stettin—Erster Stettiner Bicycle und Automobil Club.

Strassburg—Strassburger Automobil Club.

Stuttgart—Suddeutscher Automobil Club ; Wurtembergischer Motor Wagen Verein.

GREAT BRITAIN.

Birmingham — Motor and Cycle Trades Club, Corporation street.

Edinburgh — Scottish Automobile Club.

Liverpool—Liverpool Self-propelled Traffic Association, Colquitt street. Secretary, E. Shrapnell Smith.

*London—Automobile Club of Great Britain and Ireland, 4 Whitehall Court, S. W. Hon. Secretary, C. Harrington Moore.

Nottingham Automobile Club, Secretary, A. R. Atkey, Nottingham, England.

HOLLAND.

Nimegue—Nederlandsche Automobile Club.

ITALY.

Milan—Club Automobilisti Italiani 6 via Guilini.

*Turin — Automobile Club d'Italie Via Vittorio Amedeo II, 26.

RUSSIA.

Moscow — Moskauer Automobile Club, Petrowka, Hauschnow.

St. Petersburg — Automobile Club de Russe, President, M. Delorme.

SPAIN.

Madrid—Automobile Club de Madrid.

SWITZERLAND.

*Geneva — Automobile Club de Suisse, 9 boul. de Theatre.

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Lights and Shades of Motoring

ON another page of this issue will be found the first part of an article from the able pen of Mrs. M. E. Kennard, the well-known English automobilist and writer, who has covered thousands of miles in motor vehicles of different kinds, and knows whereof she speaks. Mrs. Kennard has made a thorough study of the subject and tackles the matter from a practical view point.

In view of the proposed run from this city to Buffalo some time during the present year, her vivid description of incidents connected with the English Thousand-mile trial, held last year, will be read with interest by automobilists in this country.

The article is replete with pithy, timely suggestions. We will only refer here to one or two: her references to the effect appearances of machines have upon prospective purchasers; also the proneness of automobilists to blame the motor for much of the trouble, when as a matter fact the trouble lies not so much with the motor as with the failure to comply with the motor's demands. Numerous other

points of interest are given in the article, and all who read it will, we feel sure, thoroughly enjoy it. Mrs. Kennard does not attempt to cover up bad points, and yet always shows a willingness to give credit where credit is due.

Automobile Repair Stations

THE repair of motor vehicles is work which should be done by skilled mechanics, and preferably by those familiar with the make of machine being repaired. In too many instances, as with bicycle mechanics, they are men who are not specially trained in any one branch, but pick up a few points and pose as experts. Many owners of machines know this to their sorrow when so-called repairs have had to be done over at the factory.

As in everything else, it pays to do work right, and if the larger repair stations could secure men from the different factories, each would be a specialist in his own line, and the best of work secured. This would be economy for all concerned, for though the man would be paid a good salary he could handle a much larger quantity per day than the ordinary machinist, and the actual cost might easily be less. But the main feature is that the work would be done right and the customer satisfied.

Prevent Disappointment and Misunderstandings

THOSE who expect to get an automobile that will take care of itself, never give any trouble, be noiseless, odorless, and cost next to nothing to buy or run, are doomed to disappointment.

Not that automobiles are necessarily troublesome or uncertain, but it must not be forgotten that they are machines, and as such require a reasonable amount of care and attention. They do not take care of themselves any more than any other machine, and the day of the "you press the button and it does the rest" automobile has not arrived—nor is it likely to.

We do not wish to discourage a single person from being interested and enthusing over automobiling, but we feel that the best way to retain enthusiasts is to prevent their being disappointed. The

dealers who point out the difficulties as well as the pleasures of automobiling will be the ones to retain the good will of purchasers and sell the most machines. It pays to be perfectly candid in all matters of this kind, not to make claims which you cannot live up to, or a little more, and not to minimize the possibility of trouble with the machine.

We believe it is far better to point out possible difficulties and show the best way to handle them than to let a man who has no mechanical instinct go out in blissful ignorance that anything can happen. It's the old story of the "ounce of prevention" being better than getting a horse to tow you home.

N. A. A. M. and the Proposed Endurance Test

THE National Association of Automobile Manufacturers has passed a number of resolutions bearing upon the proposed endurance test of the Automobile Club of America. In the first place, the manufacturers believe that judging should be based upon an average speed per hour ; that a carriage should maintain a certain average speed from control to control. It recommends also that carriages be divided by weight into four classes, A, B, C and D. Class A to be composed of vehicles of four wheels under 1,000 pounds ; Class B, vehicles of four wheels from 1,000 to 2,000 pounds ; Class C, vehicles of four wheels, weighing 2,000 pounds and over ; Class D, motor bicycles, motor tricycles and motor quadricyles. In counting the average speeds above required each vehicle can stop as many times as desired between controls for any purpose whatever. No manufacturer or individual should be allowed to enter more than three vehicles in each class.

Book Review

The Automotor and Horseless Vehicle Pocket Book for 1901. Copy of this has been received by us and contains the usual goodly store of information which automobilists and manufacturers want to get hold of. The book has been brought up to date and will be found of great value to both owners and builders. The work is bound in leather with gilt lettering and is sold for 2 shillings and 3 pence. An edition bound in boards is also published and sold for 1 shilling and 3 pence. It is published by F. King & Co., Ltd., 62 St. Martin's Lane, London, England.

On the Operation of Gasoline Automobiles

ON the evening of February 12, Mr. C. J. Field, Chairman of the Technical Committee of the Automobile Club of America, delivered an address before the members of that organization on the "Operation and Care of Gasoline Automobiles."

The speaker described the various operations of a hydro-carbon motor, and showed the differences between the two and four cycle, better known as the Otto cycle. He referred to the tendency of owners to get out of patience with their machines, owing to their failure to "mote" at times, gently reminding his hearers that if those who ran gasoline motors would spend 15 or 20 minutes each day in their inspection, much of their trouble would disappear.

The various means of igniting the explosive mixtures were described in a clear and concise manner, and the speaker by his answers to the many questions put to him cleared up many points which had been the cause of much confusion in the minds of his hearers, and consequently of great annoyance. Mr. Field declared as his belief that 90 per cent. of the trouble peculiar to explosion motors as used on automobiles was due to the ignition. In this he was corroborated by a number of those present.

A model of the latest type of De Dion quadricycle was in the room, and on this Mr. Field demonstrated how the operator can control the speed of the motor by the advancing and retarding of the spark.

The address was listened to with great attention and at its close the speaker was accorded a hearty vote of thanks for his interesting and instructive talk. It was delivered in such a way as to be understood by laymen as well as those who have to do with the design and construction of automobiles. After the lecture the House Committee entertained the members at a supper. The whole meeting was suggestive and the points discussed were vital, both from the owner's and builder's standpoint.

The next lecture will be delivered March 26 by Mr. A. L. Riker, who will talk on the subject of "Operating and Caring for Electric Vehicles."

About Breakages

MANY people—a few of them builders—seem to think that there is no excuse for any part of an automobile breaking down and that if breakages occur it is gross carelessness in construction or poor material. It is possible to build a machine—on paper—with all strains and stresses nicely calculated and allowed for, which should not prove weak at any point, but with "every part as strong as the rest" should run until it falls all to pieces like the deacon's wonderful one-horse chaise.

As a matter of fact this is neither possible nor desirable. We have been building carriages for several hundred years, and yet, as every driver knows, they are not free from breakage. The locomotive has had the careful attention of mechanics for nearly a hundred years and though it runs on a steel track and is looked after as carefully as a horse, it frequently breaks down in its various parts. Frames, axles, piston rods, cross-heads, cylinders and other parts fail when least expected, and yet no one claims that they are poorly designed or built. Strengthening a point that fails simply throws the next break to some other place, and all machine designers purposely make a "breaking point" which will give way before any part of the machine is damaged. This should, of course, be a part that is easily and cheaply replaced and should be considered the same as a safety valve on a steam boiler or a fuse for an electric circuit.

Any machine will wear and sometimes break in spite of any theory that may be advanced, and it is far better to have a "breaking point" that will give little trouble or delay than to have the whole machine or any part of it liable to collapse when its limit of endurance was reached or before. No machine has ever been made or ever will be made that will not wear and also break at times.

A safe working load for balls is about as follows: For balls ⅛-inch diameter, 125 pounds; 3/16-inch, 280 pounds; ¼-inch, 500 pounds; 5/16-inch, 780 pounds; ⅜-inch, 1,125 pounds; 7/16-inch, 1,530 pounds; ½-inch, 2,000 pounds; ⅝-inch, 3,125 pounds.

Automobile Run to the De Dion-Bouton Works

THE run of the Automobile Club of America on Saturday, March 16, was a most enjoyable affair. Those who participated mustered in the plaza outside the club's new headquarters. About 23 machines started from that place at 11.15 in the forenoon, the objective point being the plant of the De Dion-Bouton Motorette Company, Church Lane and Thirty-seventh Street, Brooklyn. There were gasoline, steam and electric carriages in the gay procession. The route was by way of Twenty-third Street Ferry, along Bedford Avenue and so out to Flatbush.

Upon reaching the De Dion works a fine luncheon was served, after which those present inspected the plant. All present enjoyed the run, and we understand that this is the first run of a series to automobile factories in the immediate vicinity, details of which will be given later. This idea is a good one, as it enables owners and prospective owners so get some insight into the methods of manufacture.

Ideas of Inventors

(*Copies of patents can be obtained from Patent Office, Washington, D. C., by sending five cents in coin.*)

NEW forms of vaporizers for explosion engines are constantly being brought out, and one of the latest to be brought to our attention is that of Rasmus P. Hansen, of Denmark. It consists of a chamber formed in head of motor and divided in two parts by a partition. The lower part communicates with the combustion chamber, while the upper communicates with the air and with inlet valve. Patent No. 668,773.

Various kinds of devices intended to do away with the necessity of giving gasoline engines a turn with a crank in order to start them have been devised. Walter A. Bradley, of Buffalo, has recently taken out a patent for an apparatus designed to store power in such a way

as to be possible to use it when it is desired to start carriage from the seat. Patent No. 668,768.

John B. Mahand and Adrian A. Pompe, of Toledo, Wash., have just taken out a patent for a new vehicle tire. This tire has a number of inner sub-dividing tubes, each one of which is, when filled with air, equal in area in cross-section to the inner cross-sectional diameter of the outer tire. These inner tubes have beveled and lapping edges with a nipple at one of said ends and a slot at the other. A removable box is carried on the inner side of rim for protecting the ends of nippers. Patent No. 668,994.

That the War Department is interested in the matter of automobiles for military purposes is evidenced by the sending out of circulars inviting bids for two automobile telegraph and repair wagons. These vehicles according to specifications must be capable of seating four persons, have motors of not less than twelve horse-power with a speed of fifteen miles per hour. The department asks for good hill-climbing qualities in the carriages, and the final paragraph reads "while good appearance is desirable, utility and long life are the main features sought for in these vehicles."

Operation of Electric Delivery Wagons

PART III

AS has been said time and again in these columns the value and life of the motor delivery wagon will depend on the number of dollars it saves a year, directly or indirectly, over the operation of a similar horse equipment. The writer has made exhaustive researches in the books of hundreds of New York city merchants and believes that the actual average cost of operating a single horse vehicle is about $900 a year. Of course, this amount is variable, and concerns maintaining a large number of vehicles have done it at a smaller cost. Then again, there are firms which make absolutely no attempt to curtail expenses in their delivery wagon department. The sum above mentioned is estimated on about the most economical basis that can be obtained. It allows but little for interest charges on the investment in the horse and equipment, and provides but small wages for the driver. The figure, however, is placed at this point to give the horse every advantage in the comparison. It makes no allowance for the chance of the horse dying, damage by runaways, or for accident insurance.

In New York and in other cities there are firms and individuals doing a good business in renting out delivery wagons—horse, wagon and driver for a certain specified sum each year. For this money the owner of the vehicles sends them to the respective lessees every business day in the year, and takes all the responsibility and bother of operating the service. The average charge for this service is over $1,200 for each horse, wagon and driver. This may be taken to be the fairest estimate of the actual cost of operating a horse delivery wagon. In every case where an assistant is required on a rented wagon to aid in delivering the goods, such assistant is paid by the lessee of the apparatus. The average wage paid a driver in New York

city is $11 a week, and the average weekly pay of a boy assistant is $5. It is extremely difficult to set a definite figure as to what is the real cost of operating a horse vehicle, for each prospective user has a different way of estimating the charges. One will say that the figure set is too low, and in all probability some very close Napoleon of Finance will loom up and tell you that his service costs him a hundred dollars or so less than you have figured the average cost.

The actual cost of operating an electric vehicle is, however, fairly well defined. This, of course, depends upon the condition of the roads and grades, the average load carried, and the local price for electricity. If the vehicle is operated on an average of thirty miles a day, and electricity is sold at about the usual price of six cents per kilowatt, road and grade conditions being fairly good, the power charge will vary, probably running between eight and ten dollars per month.

The amount to be written off each year for depreciation in the batteries and vehicle itself is subject entirely to the care given the equipment. M. Worby Beaumont, the author of "*Motor Vehicles and Motors*," estimates the charges on an electric vehicle as follows: interest on the investment @ 4%; depreciation on the vehicle @ 10%; depreciation on the battery @ 50%; battery renewals @ 15%; general repairs and renewals @ 10%; and tire renewals, rubber used, @ 3½%; all percentages being taken on the net first cost of the vehicle's component parts.

The cost of power, storage, insurance, cleaning, etc., varies with each locality, and is to be added to the other amounts when they have been definitely determined.

Some American students of the electric motor vehicle do not estimate the charges against a vehicle in this arbitrary manner, but after painstaking research they state that they are convinced that an electric vehicle can be run for a little more than a similar horse vehicle. With ordinarily intelligent care the writer believes that an electric wagon can be run for considerably less than a horse vehicle. Be that, however, as it may, all agree that a well made electric delivery wagon, used as it should be, can be operated and maintained for a figure varying anywhere from ten to twelve hundred dollars a year. These figures are susceptible of proof at any time.

Considered as a pure matter of expenditures we find that the electric goods delivery vehicle is operated at a cost not far above the same amount as the horse vehicle.

A close examination of the work done by the wagons of a large department store in New York City shows that about twenty-five and three-quarter miles a day is the maximum for a horse drawn vehicle. When it is considered that in the same time and over the same routes electric vehicles have made, day in and day out for a period of over a year, more than thirty-one miles, it is apparent that there is a very considerable saving per ton per mile in operating an electric delivery wagon.

As to the methods of operating electric vehicles for commercial service all that can be said is that time alone can show which methods are the best. At present the electric delivery wagons seem to give better results when not required to cover as many miles each trip as are required from a horse vehicle of a similar design. This is not because an electric vehicle cannot make as long a trip on one charge of the batteries as a horse, but because of the modifications made necessary by the peculiarities of the storage battery. The cells seem to give better results when charged and discharged for a small part of their capacity each time.

As in everything else along the line of mechanics and things mechanical, the more care bestowed on the machinery the lower its cost to maintain. Common sense must be used in its operation, and such use is the only way to get the proper results from a storage battery—the horse of the delivery wagon. The time is coming when the electric delivery wagon will supersede the greater number of the horse vehicles of similar design now operating in our cities. Electricity, gasoline and steam each have their field, and it seems to be a fact that the electric vehicle is more adapted to the conveying of loads of 4,000 pounds or under than any other type of motor wagon.

When the experiences of automobile users are published it seems as though the reporters thereof would do well to state all the conditions under which those experiences were gained.

The writer has talked with a number of the owners of electric delivery wagons and in almost every case where the results have not been satisfactory there have been conditions to explain the failure to render the proper service. When, however, a wagon is declared to be more expensive to operate than a horse on evidence such as the following, the absurdity of such a statement is more than ridiculous: "We furnish our own current and so have no idea of the exact cost, but think the service is not cheaper than horses." Politeness does not permit of the proper characterization of such a remark.

A typewriter company finds the vehicles it uses expensive to operate, first because it does not use even ordinary business sense in making its arrangements for the care of the vehicles, and secondly because its men do not give the wagons the proper care in operating them. Their repair bills comprise accounts against the armature, burned out, repairs to battery, including a new one, repairs and renewals of the solid rubber tires. The same kind of abuse which caused the burning of the armature in all probability necessitated the renewal and repair of the batteries. In nine cases out of ten such repairs are made essential because of the ignorance of the drivers.

The same may be said of most of the cases where the electric vehicle is claimed not to have been satisfactory. How different it is when we hear the results attained by such houses as the Gorham Manufacturing Company and B. Altman & Company, both of New York City. The Gorham Company has had five wagons in use for over eighteen months, four being run continuously, and the fifth being held in reserve. All the vehicles are said to make over forty miles a day, being recharged at noon.

The results attained in this case are not due to the hiring of any expert electrician, but are due to the care given the vehicles by their regular drivers. The original batteries are still in use, and bid fair to be continued in service for some time to come.

B. Altman & Company were the first to use electric delivery wagons to any great extent in New York City. Their use has been so satisfactory that the equipment has been increased regularly until now B. Altman & Company have twelve wagons in service.

In Chicago Marshall Field & Company and Siegel, Cooper & Company, both the New York and Chicago stores, have been more than pleased with the results they have attained by the use of electric vehicles, and have found them to be highly satisfactory in the rush season. Especially was this the case around the Christmas holidays.

In Boston the New England Electric Vehicle and Transportation Company is doing most of the work. Houghton & Dutton use about twenty-five vehicles every day. Messrs. Cobb & Aldrich operate their own vehicle, and it has given very satisfactory results.

The Wanamaker Stores in New York and Philadelphia have had good service from their equipment, which they rent from the Electric Vehicle Company.

These experiences seem to show but one thing, and that is those owners who use common sense and ordinary care in the operation of

their vehicles get good results, while those who do not get only what they deserve. Machinery never yet ran smoothly without care, and to expect an automobile to do so is utter asininity.

Horse vs. Electrical Equipment

By H. M. UNDERWOOD

MUCH has been said and written in the past relative to the comparative cost of the present horse equipment as against the electric equipment, but in very few instances, if at all, have actual results and daily expenses been obtainable for publication.

In the following case the figures are absolute, having been taken from the books of one of the leading Western firms in both instances, and can be relied upon as the result of one year's practical operation with 14 wagons and 24 horses, the other being 9 electric delivery wagons. These will give a very good idea of the advantages derived from the use of the automobile delivery wagon over the old method. It is to be regretted that permission to use the names of the parties giving these figures was refused for certain business reasons.

Before giving the figures, it will be well to keep in mind that the average life of a horse in our large cities, is from two to three years, when used every day in covering from 15 to 20 miles, and which, by the way, is a good, hard day's work for any horse on paved streets. There are those who claim that a horse can travel from 25 to 30 miles per day, and do this in the space of from 8 to 10 hours, but it is a well-established fact that no horse can cover this mileage day after day, and live to see many days. In the United States cavalry it is figured that the mileage of a horse is not over 15 miles per day.

In the first instance, the price paid for horses was under contract at $150 net, and every three years the old ones were replaced by new ones. The stable arrangements were well looked after in every particular, and the utmost care taken in the wagon department.

In the supplying of the current for the electric wagons there being located on the premises an isolated lighting plant, the cost of the current was reduced to the lowest possible point. This plant was then supplying about 7,600 lights in the building.

FIRST COST OF EQUIPMENT—HORSES.

24 horses, at $150.00 each	$3,600 00	
14 wagons " 125.00 each	1,750 00	
24 sets of harness at $38.00 each	912 00	$6,262 00

ELECTRIC.

9 electric wagons at $1,850.00 each	16,650 00	16,650 00

OPERATING EXPENSES—HORSES—ONE YEAR.

Interest on investment at 6 per cent	$375 72	
Paint for horses barn per year	30 00	
Stall repairs per year	25 90	
Stable brooms per year, $1.60 per month	19 20	
5,720 bushels oats per year, at 35 cents	2,002 00	
104 tons of hay per year, at $11.00	1,144 00	
6,500 pounds bran per year, at $2.25 cwt.	146 25	
Shoeing 24 horses yearly at, $3.50 per month	1,008 00	
Medicine for all horses per year	34 60	
Painting and repairing wagons per year	467 88	
Blankets per year, at $1.50 each	36 00	
Three hostlers at $17.00 per week all per year	884 00	
Halters for stable use 65 cents per year	15 60	
Lanterns on wagons per year	18 40	
Oil for lamps	9 00	
Barn lanterns	4 75	
Harness grease	6 70	
Wagon "	7 50	
Incidental expenses	79 40	
14 drivers at $12 per week, per year	8,736 00	
7 helpers at $7 " " " "	2,548 00	
Depreciation on wagons and harness at 10 per cent	266 20	
	$17,865 10	$17,865 10

OPERATING EXPENSES—ELECTRIC—ONE YEAR.

Interest on investment	$999 00	
Depreciation on equipment, at 10 per cent	1,665 00	
Cost per day per wagon, at .1106 cents for 9 wagons per year of 313 days, including oil, waste, current, etc	311 56	
Annual cost per wagon for batteries, guaranteed at $50.00 each per year	450 00	
Repairs and painting of wagons per year	680 20	
Incandescent lamps for wagons per year	13 60	
Incidentals	62 00	
Vaseline for wheels, ball bearing, per year	8 10	
Nine operators at $12.00 per week, per year	5,616 00	
Two helpers at $8.00 " " " "	832 00	
One electrician at $60.00 per month	720 00	
Blankets for wagons, at $2.00 each	18 00	
	$11,375 46	$11,375 46
		$6,489 64

FOR THREE YEARS OPERATING—HORSE.

New horses	$3,600 00	
Running expenses three years	19,743 30	
Labor expense " "	33,852 00	
	$57,195 30	$57,195 30

ELECTRIC.

Running expenses three years	$14,782 38	
Labor expense	19,344 00	
Two sets of rubber tires in three years, per wagon	3,600 00	
	$37,726 38	$37,726 38
Saving of electric in three years over the horse equipment		$19,468 92

In the foregoing figures there are one or two matters that must be taken into consideration on both sides.

In the first place, it will be noticed that the number of vehicles differ somewhat. The horse delivery out-number the electric by five wagons, but when we take into consideration that the mileage traveled by the electric is somewhat more as a total, it will be understood why nine wagons will do the same work that the fourteen were doing.

The reason that no bedding was figured in the barn expense in the above figures is, that shavings were used which cost them nothing, and, as these figures are actual, could not, therefore, make an item that did not show on the books, but, as a general thing, must be figured in the regular expense.

In the operation of the horse equipment the average of 18 miles per day was made with 12 of the 14 wagons, the other two were used in heavier work, such as teaming to and from depots, etc. ; these two only averaged about 11 miles per day, two horses to each wagon.

The work that the 12 wagons were doing required them to make from 60 to 100 stops each per day, and the load carried varied from 450 to 1,500 pounds. The time covered in this work was 12 hours, allowing one and a half hours for meals. The weight of the single delivery wagons was from 900 to 1,000 pounds each, and the two larger wagons about 1,300 pounds each.

As to the electric delivery wagons, they made just about the same number of stops, but the mileage per day was somewhat more, being about 44 per day per wagon, as they were geared to run as high as 14 miles per hour when the opportunity offered, and the time in this case based on 10 hours, a day's work.

At noon time two hours was had for charging, while checking out packages and loading wagons, so it will be found practical for 9 electric wagons to do the same work that 14 can do when operated by horses, and in this case showing an actual saving in three years' operation of $19,468.92, or more per year than the first cost of the horses, wagons and harness equipment. The weight of the electric wagons was from 2,240 to 3,000 pounds each.

The claim has been made by a very large Eastern firm operating a large number of wagons that one electric can do two and a half times as much work as the same size wagon can do when operated by horses.

The item in the electric expenses for "Repairs and painting of wagons," there was an item of $134, caused by collision with an electric car, and while this might have occurred to the horse and

wagon as well, it might tend to make the laymen think that the electric was much more expensive in ordinary wear and tear than the horse, while in reality it is not.

There is another very important matter that must not be omitted, and that is the small amount of space required for the storage of the electric vehicle as compared with that of the horse and wagon, and if the rent consideration was figured in here, the showing would be very large in favor of the horseless vehicle.

While these figures are the results of operating in two different cities, the general conditions were about the same, and it is only a matter of time when business will be done by the use of the automobile, particularly where the parties having the automobiles have their own plant for charging their vehicles, as in this case.

Inquiries

(1) We have an inquiry for a cheap and practical motor carriage suitable for hotel and livery business. One capable of carrying about six passengers would fill the bill.

The annual meeting and banquet of the Automobile Club of Bridgeport will be held April 1. The total membership of this club is now twenty-six.

The Automobile Index

Everything of permanent value published in the technical press of the world devoted to any branch of automobile industry will be found indexed in this department. Whenever it is possible a descriptive summary indicating the character and purpose of the leading articles of current automobile literature will be given, with the titles and dates of the publications.

Illustrated articles are designated by an asterisk (*).

***Acid Solution for Storage Batteries—**

By Rudolf Henry, in Centralblatt für Accumulatoren und Elementenkunde. An article in which is pointed out the great importance of seeing that acids used are free from all foreign matter. "Horseless Age," New York, March 6, 1901.

Air, Dyalised—

(See under Dyalised.)

***Bearing, Moffet Roller—**

A new bearing in which the rollers are hollow, being held in place by balls at either end. "Horseless Age," New York, March 13, 1901. (See under Roller.)

***Bicycle, Construction of a Motor—**

Continuations of a series of articles giving working drawings and dimensions. "English Mechanic and World of Science," London, February 1, 8 and 15, 1901. (See under Motor.)

***Bicycling for Women, Motor—**

By Isabel Marks. An article in which is pointed out a number of the pleasures of motor bicycling for the gentler sex. "The Autocar," London, March 2, 1901.

***Bicycles, Motor—**

Description of a large number of cycles. "The Automotor Journal," London, February, 1901.

Belt Protection—

A number of letters from users of machines on which belts are used for transmission of power. These letters contain a number of very good suggestions as to how belts and chains may be protected from the dirt. "The Autocar," London, February 2, 1901.

Carbureters Condemned—

A criticism of a previous article appearing in the same publication, in which Hugh Dolnar condemned the use of carbureters as unnecessary, claiming that the same results can be obtained by dropping the fuel direct into the cylinder without the intervention of outside mixing chambers. "The Autocar," London, March 2, 1901.

***Carbureters Condemned—**

Hugh Dolnar. In his article Mr. Dolnar argues against the use of the carbureters now on the market, claiming that they are wholly needless complications. He asserts that all that is needed to burn liquid fuels perfectly in motor cylinders is to in some way deliver the liquid fuel to the incoming air charge so that the air charge shall act as a vehicle to carry the liquid fuel into the cylinder. "The Autocar," London, February 23, 1901.

***Combustion, Fuels and—**

Hugh Dolnar. "Automobile Magazine," New York, March, 1901.

***Decanville Carriage, 8 Horse-Power—**

Description of the vehicle which was run for 1,000 miles on the Crystal Palace track without a stop. "The Autocar," London, March 2, 1901.

***Delivery Wagons, Operation of Electric—**

W. H. Maxwell, Jr. Continuation of a series dealing with problems connected with handling of electric vehicles for this particular service. "Automobile Magazine," New York, March, 1901.

***Dress Styles for 1901, Automobile—**
Article in which is described what is considered the correct style. "Horseless Age," March 13, 1901.

***Duryea Carriage, The—**
Description of a carriage built in America. The designer is a pioneer in automobile construction. It is a well designed and beautifully finished vehicle. "The Autocar," London, February 2, 1901.

Dyalised Air—
An interesting criticism of a scheme advocated by Count Rècopé, by which he proposes to supply super-oxygenated air to the carburetor of gasoline motors. "The Autocar," London, February 9, 1901. (See under Air.)

***Electric Automobile, The Krieger—**
The motors on this carriage are mounted on the front. The batteries are of the Fulmen type. "La Locomotion Automobile," Paris, February 28, 1901.

***Fuels and Combustion—**
Being the fourth article on "The Final Automobile," by Hugh Dolnar. Discusses the various fuels suitable for automobile motors. "Automobile Magazine," New York, March 1901. (See under Combustion.)

Fuel, Foraging for—
By I. B. Rich. A short story cleverly conceived. "Automobile Magazine," New York, March, 1901.

***Gasoline Carriage, Design of a Light—**
First of a series of articles describing a light vehicle. Contains working drawings and dimension figures. "Horseless Age," New York, March 13, 1901.

Gasoline, The Storing of—
A short editorial on the storing and handling of gasoline. "Automobile Magazine," New York, March, 1901.

***Gear for Motor Vehicles, History of the Compensating—**
By Sidney Russell. An interesting article going into the history and development of this part of motor carriages. "The Automotor Journal," London, February, 1901.

***Governing, The Peugeot Method of—**
Description of a new plan for governing the admission of air and gas for gasoline motors. "The Autocar," London, February 9, 1901.

***Lorry, The Benz Motor—**
Description of a one-and-a-half ton wagon fitted with a 6 horse-power motor. "Motor Car Journal," London, February 2, 1901.

***Lorry, The Panhard—**
These vehicles can be fitted with 8, 12 or 16 horse-power engines, according to loads to be carried. These wagons took a conspicuous part in the recent French military maneuvers. "Autocar," London, March 2, 1901.

***Millot Carriage, The—**
This vehicle may be equipped with either two or four cylinders. The peculiar feature of this carriage lies in the speed-changing gear. "Horseless Age," New York, March 13, 1901.

***Motor Bicycle, Construction of a—**
(See under Bicycle.)

***Motor Carriage, The Hautres—**
Description of a typical French vehicle with tonneau body. Equipped with a 12 horse-power motor. "La Locomotion Automobile," Paris, February 14, 1901.

***Paris, Motor Cars in—**
An article describing some of the well-known vehicles, in which the author endeavors to point out the evolution of the modern motor vehicle, based on the exhibits at the recent show held in Paris. "The Engineer," London, February 22, 1901.

***Paris Show, The—**
Description of the various motor vehicles shown at this exhibition. "The Autocar," London, February 9, 1901.

***Pattern for Water-jacketed Cylinder—**
W. O. Anthony. A description of methods to be followed in making a set of patterns for a water-jacketed

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cylinder and head. "Horseless Age," New York, March 6, 1901.

***Petroleum Spirit Car, The Nesselsdorf—**

The motor is of horizontal two-cylinder type, the cylinders being so arranged that the piston rods work onto a central crank shaft. Four speeds forward and a reverse motion are provided. "Motor Car Journal," London, February 16, 1901.

***Petroleum Spirit Motor, The Allard—**

Description of a motor fitted to a small car bearing the same name. Water cooling is used and the motor is said to be very efficient. "Motor Car Journal," London, February 9, 1901.

***Pump, A Handy Tire—**

"Automobile Magazine," New York, March, 1901. (See under Tire.)

Racing Car, A French—

Description of the Darracq 80 horse-power carriage. "Automobile Magazine," New York, March, 1901.

***Radiator for a 100 Horse-power Motor.**

Description of a radiator designed by M. Loyal. It will be carried on the front of car. It has 170 feet of tube in it and 1,000 gills. This tubing and gills had to be bent into a space 30 inches high by 12 inches wide, giving a total cooling surface of 82 square feet. "The Autocar," London, February 16, 1901.

***Rochet Carriage, The—**

This is of the French construction and certainly has the appearance of a strong, well designed vehicle. Has the tonneau body peculiar to foreign-built machines, and is fitted with a 6 horse-power motor. "La Locomotion Automobile," Paris, France, February 11, 1901.

***Roller Bearing, Moffet—**

(See under Bearing.)

***Steam Car, The 12 Horse-power Serpollet—**

Description of a new carriage of this well-known build. The carriage body is directly at back of operator. "Motor Car Journal," London, February 16, 1901.

***Steam Carriage, One Season's Experience with a—**

P. T. Rees. "Automobile Magazine," New York, March, 1901.

***Tire Pump, A Handy—**

Description of a pump used by Mr. Kennard and fitted to his "Sir Charles." "Automobile Magazine," New York, March, 1901. (See under Pump.)

***Voiturette, Panhard—**

This is a peculiarly constructed carriage and possesses some new points. The motor is set at an angle and is, practically speaking, an air-cooled engine with a water-jacketed cylinder. "The Autocar," London, February 23, 1901.

Voiturette, Suggestions on the Operation of a—

A reprint from "The Motor News," and written by R. J. Mecredy. "Automobile Magazine," New York, March, 1901.

***Wagonette, The Searchmont—**

Description of a carriage which is an improvement over the voiturette style of body. Can be fitted with either a 5 or 10 horse-power motor. "Automobile Magazine," New York, March, 1901.

Wheels, Slipping of—

An editorial calling attention to the trouble caused by slipping. At present there does not appear to be any material sufficiently adhesive to prevent this. The article embodies a number of ideas on the subject held by Mr. A. Herschmann of the Adams Express Company. "Horseless Age," New York, March, 1901.

Wheels, The Size of—

Discussions as to the merits of wheels of large and small diameter. "Motor Car Journal," London, February 23, 1901.

Winton, Experiences with a—

F. W. Manross. "Automobile Magazine," New York, March, 1901.